

NCSX TEAM BIOGRAPHIES

W. Blanchard..... Job Manager: Fueling and Vacuum
A. Brooks Job Manager: Systems Analysis & Technical Assurance
T. Brown Job Manager: Field Period Assembly/Tooling Design/Design Integration
J. Chrzanowski Job Manager: Modular Coils / Poloidal Field Coils
M. Cole Job Manager: Design Integration / Assembly Specs and Drawings
F. Dahlgren..... Job Manager: Conventional Coil Support Systems/ Support Structure
L. Dudek Responsible Line Manager: Construction / Job Manager: Water/Utilities
R. Ellis..... Job Manager: Metrology Coordination
C. Gentile Job Manager: Start Up
P. Goranson..... Job Manager: Vacuum Vessel / Coil Services
C. Gruber..... Consultant
J. Harris..... Deputy Project Manager
P. Heitzenroeder Project Engineering Manager
Responsible Line Manager: Stellarator Design and Procurement, PPPL
M. Kalish..... Job Manager: Toroidal Field Coils / Trim Coils / Bakeout Systems
J. Levine Head, Environment, Safety and Health, PPPL
J. Malsbury..... Head, Quality Assurance, PPPL
G.H. Neilson..... Program Integration Manager

E. Perry Job Manager: Final Machine and Plant Design and Assembly
S. Raftopoulos Job Manager: Cryostat / Cryogenic Systems
S. Ramakrishnan..... Job Manager: Electric Power
W. Reiersen..... Job Manager: Systems Engineering Support
D. Rej..... Project Manager
P. Sichta Job Manager: Controls, Instrumentation and Data Acquisition
R. Simmons..... Job Manager: System Engineering Support
B. Stratton Job Manager: Diagnostic Design and Fabrication
R. Strykowski Project Control Manager
R. Templon..... Head, Procurement, PPPL
M. Viola..... Job Manager: Field Period Assembly
A. von Halle Responsible Line Manager: Electrical Systems

M. Zarnstorff Head, NCSX Research

William R. Blanchard
NCSX Job Manager: Fueling and Vacuum

Bill Blanchard is presently responsible for the management of the Experimental Systems Branch at the Princeton Plasma Physics Laboratory. This branch includes the diagnostics, tritium, vacuum, fueling and glow discharge cleaning systems for the National Spherical Torus Experiment (NSTX).

Prior to the start of NSTX operations, Blanchard designed the vacuum, fueling and glow discharge cleaning (GDC) systems for NSTX and oversaw the fabrication and installation of these systems. He also oversaw the subsequent installation of a trimethylboron (TMB) system used for wall conditioning. Presently he is the vacuum engineer for NSTX with responsibility for the overall operation of these systems. He is also a Chief Operating Engineer (COE) for NSTX.

From the time Blanchard started at the Princeton Plasma Physics Laboratory in 1980 to the time he joined TFTR operations in 1987, he was the vacuum engineer for the PDX and TFTR tokamaks with responsibility for the operation of vacuum related systems for those fusion devices.

From 1992 to 1997, Blanchard was responsible for the supervision of the Machine Operations Group during the deuterium-tritium (D-T) phase of operation of the Tokamak Fusion Test Reactor (TFTR). This group included the TFTR Shift Supervisors, COEs and the Machine Operation Technicians. This group had overall responsibilities for the safe and efficient operation of TFTR and the experimental facility during this important phase of fusion research.

Blanchard has a B.A in Physics from Temple University. He is a member of the American Vacuum Society and is co-author of over 40 papers on vacuum and fusion technology.

Art Brooks**NCSX Job Manager: Systems Analysis and Technical Assurance**

Art Brooks is an Engineering Analyst serving as the NCSX WBS manager for Systems Analysis and Technical Assurance. He reports to Phil Heitzenroeder, head of the Mechanical Engineering Department. Art has been involved with the NCSX project since its inception in 1997, performing analyses that helped define the magnetic configuration for NCSX and continues to provide analysis support to manage field error sources and mitigation.

Art has over 30 years experience in the analysis of fusion research devices. He joined PPPL in 1986 to work on a number of projects including the CIT, BPX and TPX studies and the NSTX experimental device. Previously he worked with EBASCO Services from 1975-1984 as a subcontractor at Princeton to support TFTR Design and Construction and then with Grumman from 1984-1986 to provide analytic support for the operation of TFTR.

His experiences cover electromagnetic, thermal, hydraulic and structural analyses of field coils, vacuum vessels, and protective armor. He is proficient in the use of Finite Element Analysis (FEA) codes, particularly ANSYS, for solving coupled field problems. He has also developed numerous analysis codes in FORTRAN. He is also experienced with the Pro Engineer CAD program.

Art received his MS in Mechanical Engineering from Polytechnic Institute of New York and graduated magna cum laude with a BS in Mechanical Engineering from CCNY (the City College of New York).

Art received the PPPL Distinguished Engineering Fellow Award in 2003.

Art has authored and co-authored a number of papers on engineering analyses of fusion research devices and has contributed to several physics papers dealing with stellarator magnet design.

Thomas G. Brown, PPPL

NCSX Job Manager: Field Period Assembly / Tooling Design / Design Integration

Tom Brown is currently responsible for field period assembly (FPA) tooling design and design integration on the NCSX project. He has been involved in a number of past design initiatives developed at the Princeton Plasma Physics Laboratory (PPPL). Projects include the Fusion Ignition Research Experiment (FIRE) and a number of smaller design studies that supported outside university initiatives including the Compact Auburn Torsatron, the Maryland Centrifugal Torus, and magnet design for the ARIES-AT fusion power design study. Mr. Brown was also responsible for developing the processes and standards for using Pro/Engineer and the Pro/INTRALINK data management system at PPPL.

Prior to working at PPPL, Mr. Brown was employed by the Northrop Grumman Corporation's Advanced Systems and Technology Division. At Northrop Grumman, Mr. Brown worked on the Korean Superconducting Tokamak Advance Research (KSTAR) Project and accelerator technology development for Princeton University.

At KSTAR he developed magnet system and vacuum vessel conceptual design details, coordinated design integration activities, and established an interim CAD data control system to manage the development of a large Pro/ENGINEER CAD model of the KSTAR device.

Mr. Brown was responsible for the design, procurement, and installation of subsystem components at the electron accelerator system "user facility" at Princeton University. Responsibilities included: design of a new magnet wiggler, a wiggler vacuum system, upgrade of the accelerator gun and booster heat exchange system and IR transport system.

Between 1969 and 1995, Mr. Brown worked for the Grumman Corporation where he performed design integration and systems engineering for magnetic fusion energy projects at PPPL and the Oak Ridge National Laboratory (ORNL). At PPPL he contributed expertise to the Tokamak Physics Experiment (TPX) and the Tokamak Fusion Test Reactor (TFTR). For ORNL he played a lead role in developing the tokamak fusion configuration through a number of national and international reactor design studies. While at Grumman, Mr. Brown lead the development of the conceptual design of a superconducting air core toroid system used in a detector proposal to the Superconducting Super Collider. He held design responsibilities in a number of F-14 design groups; responsible for the structural design of an aeroelastic tailored graphite/epoxy wing; cognizant engineer on the B-1 substructure verification test program; the space shuttle wing preliminary design and the space shuttle conceptual design.

Mr. Brown received a BS degree in Aeronautical Engineering from Purdue University, an MS in Civil Engineering and an MBA in Corporate Finance both from New York University. Mr. Brown entered Grumman on its Engineering Masters Fellowship program and worked towards his Masters Degree concurrent with assignments in structural design, mechanical systems, and the Advanced Systems design group.

James H. Chrzanowski, PPPL
NCSX Job Manager: Modular Coils / Poloidal Field Coils

Mechanical Design Branch Head
Princeton Plasma Physics Laboratory

In his current position, Mr. Chrzanowski is responsible for managing PPPL's Central CADD Design Group and mechanical engineers involved with the hardware design of systems and components for fusion experiments. He is presently the job manager for the manufacturing of the NCSX Modular Coils and the Poloidal Field Coils. Jim also serves as Cognizant Torus Systems Engineer for the National Spherical Torus Experiment (NSTX) and is supporting cost and schedule planning for the National Compact Stellarator Experiment (NCSX) in the areas of torus system upgrades and maintenance. Prior to his NCSX assignment he served as Engineering Manager for the Decommissioning and Decontamination of the Tokamak Fusion Test Reactor (TFTR), completed on schedule and under budget in September 2002.

From 1997 until 1999, Mr. Chrzanowski oversaw the design, cost/schedule, and fabrication of the tokamak components for NSTX. This included the coil systems, the vacuum vessel, and in-vessel plasma facing components.

In 1997-98, Mr. Chrzanowski supported the ITER vacuum-pressure impregnation (VPI) program by providing applicable TFTR VPI information and procedures, reviewing and participating in the preparation of ITER VPI procedures, taking part in technical planning meetings, and providing on-site support for the actual vacuum-pressure impregnation process.

Mr. Chrzanowski has 33 years of engineering experience in magnetic fusion energy research. He worked on the design and fabrication of coils and bus systems for such machines as the NSTX, the Advanced Toroidal Facility (ATF) at the Oak Ridge National Laboratory (ORNL), TFTR, the S-1 Spheromak, the Princeton Beta Experiment, the Poloidal Divertor Experiment (PDX), and the Princeton Large Torus (PLT).

Mr. Chrzanowski received an AAS degree in Engineering Technology from Mercer Community College in 1969. In 1971 he was granted a BS degree in Industrial Engineering Technology from Southern Illinois University. He is the author or co-author of 16 papers relating to magnetic fusion engineering.

Michael J. Cole, ORNL

NCSX Job Manager: Design Integration / Assembly Specs and Drawings

Mr. Cole is a Senior Engineer in the Plasma Technology and Applications section, Fusion Energy Division, Oak Ridge National Laboratory. He has been employed in the Oak Ridge complex since 1974. He has extensive experience in the design, analysis, and fabrication of Fusion equipment involving high vacuum, cryogenics, and coil design for the use in NCSX and ATF Stellarator devices.

He is involved with the project management, fabrication, and design integration coordination on the National Compact Stellarator Experiment (NCSX). Design integration activities included the assembly, planning, checking, and integration of the vacuum vessel, major coil systems, base, and cryostat. He has provided input in the planning, setup, and implementation using Pro Engineer and the database system, Intralink. Resolved Pro Engineer questions regarding the creation of drawings, models, and parts.

Mr. Cole was a US delegate to the ITER Port Diagnostic Task Force in 2005.

Mr. Cole was assigned to the Advanced Toroidal Facility (ATF) Helical Field Coil. He developed plans, schedules, drawings, and assembly details related to the design of the Helical Field Coils. He was responsible for vendor surveillance during the fabrication of the Helical Field coil components and fabrication support during the assembly of the ATF device.

Mr. Cole developed plans, schedules, drawings, and assembly details related to the design of the Advanced Toroidal Facility (ATF) pellet injector, TFTR Tritium pellet injector, and several smaller pellet designs.

Mr. Cole developed plans and drawings for the folded waveguide antenna to be installed during the final stage of TFTR. This project was not selected for installation.

Mr. Cole is interested in the area of design and assembly/fabrication of hardware. Mr. Cole is proficient in the use of Cad software to develop solid models and drawings. Mr. Cole is experienced with the cad software Pro Engineer but is currently learning Catia V5.

Mr. Cole received a BS in Mechanical Engineering from Memphis State University in Memphis, Tennessee in 1973.

Fred Dahlgren, PPPL
NCSX Job Manager: Conventional Coil Support Systems / Base Support Structure

Fred Dahlgren is a senior mechanical engineer in the mechanical engineering department of the Princeton Plasma Physics Laboratory where he reports to Phil Heitzenroeder, Head of the Mechanical Engineering Department.

He is currently working on NCSX as the cog. Engineer for the design and analysis of the conventional coil support systems (PF, TF, and Trim coils) and the machine core base support structure. His prior 35 years experience at PPPL has largely been with the design and analysis of large magnet systems, diagnostics, vacuum vessels, support structures, and various tokamak components for plasma physics experimental devices. His analytical experience includes stress analysis, and heat transfer analysis, using various FEA (Finite Element Analysis) codes such as NASTRAN and ANSYS. He has been involved in the design and analysis of the PLT (Princeton Large Torus), PDX/PDX-M (Poloidal Diverter Experiment), the job manager for mechanical systems on the PDX neutral beam project, the job manager for mechanical systems on the S-1 (Spheromak-1) project, project design engineer for the CNT (Columbia Non-neutral Torus) field coils, project engineer for mechanical systems on MRX (magnetic reconnection experiment). He has also been involved in several diverse projects for PPPL and other institutions such as the HAPL program (High Average Power Laser, Naval Research Labs.), design and fabrication of the PTF solenoid and saddle coils for the M.I.T. model coil conductor test facility, coil analysis for the LTX (Lithium Tokamak Experiment) at PPPL, and worked on the ARIES-AT Advanced Tokamak Reactor study.

Dahlgren received his B.E.M.E. cum-laude from CCNY (the City College of New York). His experience, prior to graduation and coming to PPPL, included sub-contract design/drafting work on the Apollo program L.E.M (Lunar Excursion Module) at Grumman Aerospace, CH-54 skycrane Lofting group at Sikorsky Aircraft, PC board layout at Lundy electronics, mechanical layout at Maxon electronics, Ford Instrument division of Sperry-Rand, and general drafting and design work at Boorem and Pease.

Dahlgren has authored or co-authored several papers on various engineering design and analysis aspects of fusion research devices. He has been a member of the ASME (American Society of Mechanical Engineers) for the past 39 years. At CCNY he was nominated for membership in the Pi-Tau-Sigma and Tau-Beta-Pi engineering honor societies.

Lawrence E. Dudek, P. E., PPPL
NCSX Responsible Line Manager: Construction
Job Manager: Water/Utilities

Larry Dudek has over 25 years engineering experience in magnetic fusion energy research at Princeton Plasma Physics Laboratory (PPPL). Prior to appointment to his current position, he served as a division or section head in several areas relating to component fabrication and assembly, and to engineering for neutral-beam heating, diagnostics, and deuterium-tritium (D-T) systems.

Mr. Dudek was recently assigned as National Compact Stellarator Experiment (NCSX) Construction Manager to oversee the component fabrication, Modular Coil Assembly, Field Period Assembly and final machine assembly.

As Construction Manager for the National Spherical Torus Experiment (NSTX) in 2001-02, he managed resources to successfully complete the planned maintenance and system upgrades (OH Coil Repair, Centerstack Divertor modification, Passive Plate modifications, Thomson Scattering installation & Centerstack Ceramic Break Upgrade) on schedule and within budget. He also developed a plan to modify the centerstack divertor flange without disassembly using insitu machining techniques.

Mr. Dudek managed and supervised fabrication and installation of the tritium purification system for the Tokamak Fusion Test Reactor (TFTR). This cryogenic distillation system was built under an international collaboration with the Canadian Fusion Fuels Technology Project and was the first major installation of a "hot" PPPL tritium system. It was also the first closed-cycle tritium fuel system installed for a fusion reactor.

Mr. Dudek saved PPPL \$250,000 in disposal costs by redesigning the Laboratory's tritium shipping containers. The design was so well received that several other national laboratories have asked PPPL to fabricate the containers for them.

He designed, fabricated, and installed the Poloidal Rotation Diagnostic on TFTR. Specifications called for optical alignments greater than 1 part per 1000 in several degrees of freedom. When installed, the diagnostic exceeded these alignment and performance requirements and set state-of-the-art standards for this measurement.

Mr. Dudek completed the installation of tritium-compatible HVAC modifications for TFTR. He developed methods to reduce upgrade costs by 20%. The system was designed for the \$500M TFTR facility built for DOE.

Mr. Dudek is author or co-author of over 30 published papers dealing with fusion process systems, diagnostics, operations, and fabrication methods. He received an MBA from Rider University in 1979 and a BSME from Lafayette College in 1975. He is a licensed Professional Engineer in the State of New Jersey.

Robert Ellis_ORNL
NCSX Metrology Coordination

Robert Ellis is the Dimensional Control Coordinator for the National Compact Stellarator Experiment at Princeton Plasma Physics Laboratory.

Mr. Ellis has extensive experience in the design, fabrication, assembly, testing and installation of plasma diagnostics and RF heating equipment. Prior to joining the NCSX team, he oversaw the design, fabrication, assembly and installation of three high-power remotely steerable Electron Cyclotron Heating [ECH] launchers for the DIII-D tokamak at General Atomics; another ECH launcher for the KSTAR tokamak in Korea, and the Faraday Cup Lost Alpha Detector Array for the Joint European Torus in Culham, England. Mr. Ellis is continuing his role in the PPPL RF program and its ongoing collaboration with General Atomics.

Mr. Ellis earned a master's degree in Mechanical Engineering from New Jersey Institute of Technology, and a BSE in Mechanical and Aerospace Engineering from Princeton University.

Charlie Gentile, PPPL
NCSX Job Manager: Start Up

Charlie Gentile is responsible for the safe and efficient startup of NCSX. Concurrently he is the Head of The PPPL Tritium Systems, Chair of the NSTX Activity Certification Committee (ACC), and Principal Investigator for the PPPL WFO reactor core design task(s) for the direct drive High Average Power Laser (HAPL) Program.

His career spans > 30 continuous years in the field of nuclear research (fission, MFE, direct drive IFE). He has worked in the commercial nuclear power sector in both PWR and BWR facilities. Post graduation from the University of Buffalo where he studied the effects of ionizing radiation on complex biological and chemical systems he worked at the 2 MW Nuclear Science Technology Facility (NSTF) open pool research reactor where he was involved with the production of medical isotopes and nuclear material testing. In the nuclear power sector he held vital access supervisory positions at; The Maine Yankee Nuclear Power Station, The Salem Nuclear Power Plant (Unit 2), The Oyster Creek Nuclear Generating Station, and The Shoreham Nuclear Power Station (SNPS), where he was a member of the Nuclear Engineering / Nuclear Licensing Division responsible for the startup and commissioning of SNPS.

During his tenure at PPPL he held the position of Chief Operations Engineer on the Tokamak Fusion Test Reactor (TFTR). He served as the TFTR Nuclear Compliance Engineer during TFTR transition from D-D to D-T and was responsible for managing a group of three engineers for the re-write of the FSAR to be in compliance with the requirements of a DOE category 3 nuclear facility. As head of the Tritium Systems group he was responsible for managing a team of twenty-one supervisors, operators, and technicians for tritium safe handling, plasma exhaust processing, and isotope separation at TFTR during D-T operations.

He is the holder of US patent 6,994,831 "Oxidative Tritium Decontamination System," US Patent 7,244,948 ' Miniature Multinuclide Detection System and Methods," and has additional patent(s) pending, USPTO #: 20070294059 "System and method for resolving gamma-ray spectra," a methodology for the real-time, hyper-accurate identification of radionuclides in dynamic environments.

He has published > 35 peer reviewed journal articles germane to the topics of, the fusion fuel (tritium) cycle, real-time radionuclide identification, radiation detection. He is a plenary member of the American Health Physics Society (HPS), a member of the American Nuclear Society (ANS), and has held elected and national executive positions in these organizations.

Paul Goranson, ORNL
NCSX Job Manager: Vacuum Vessel / Coil Services

Paul Goranson is currently a Job Manager for the National Compact Stellarator Experiment under construction at the Princeton Plasma Physics Laboratory, where he reports to Mike Cole (ORNL). Goranson is a Contract Engineer working for DevTech Corp. and is a University of Tennessee Research Associate developing magnets for fusion energy research devices at the Magnet Development Laboratory (MDL) in Knoxville, TN.

Prior to his current appointment, Goranson was an Engineering Specialist for the Y12 National Defense Plant and Oak Ridge National Laboratory, responsible for Fusion Energy projects including mechanical design of tokamak vacuum vessels, Ion Cyclotron Resonant Heating (ICRH) launchers, Lower Hybrid Current Drive (LHCD), conceptual design of Centrifugal Pellet Injectors, and design work on magnetic diverters and breeder blankets during the International Thermonuclear Experimental Reactor (ITER) project conceptual design activity, including participation in joint international workshops.

Goranson's experience includes conceptual and detail design of mechanical systems including stress analysis and heat transfer, design and analysis of vacuum systems, design of hydraulic and pneumatic circuitry, vacuum casting of refractory metals, knowledge and application of high explosives and pyrotechnics, design and analysis of compressible and non-compressible fluid flow systems, design and fabrication of high speed rotating equipment, and familiarity with the ASME Section VIII Pressure Vessel Code.

In addition to his work in fusion energy Goranson has also supported defense projects including the Atomic Vapor Laser Isotope Separation Program (AVLIS), Flywheel programs, and the Gas Centrifuge Enrichment program. Previous to his position in Oak Ridge, Goranson was a Design Analyst for Carrier Corporation, Knoxville, TN and a Mechanical Engineer for McDonnell Douglas Corp, St. Louis, MO.

Goranson received his BSE in Aerospace Engineering from the University of Michigan. He has co-authored over 30 peer-reviewed publications and holds 10 patents.

Christopher O. Gruber, CCC, PMP
NCSX Consultant

Mr. Gruber is a consultant with over thirty-four years of experience in all facets of cost engineering, cost management, risk management, and project management and control related to construction, operation and decommissioning of complex capital projects. He has extensive experience with the assessment and evaluation of projects of all types at all points of the project life cycle, as well as project management and control capabilities, practices, processes, tools and systems. This was experience gained during eighteen years of employment by Gilbert/Commonwealth, a large architect engineer, two years with Pathfinder, Inc., a project management consulting firm, five years as the managing partner of a cost management consulting practice, and over nine years working as an independent consultant. His consulting experience primarily includes work for owner organizations in both the government and private sectors, either directly or through arrangements with various consulting and contractor organizations.

His experience with U.S. Department of Energy spans the past twenty years. He supports the Office of Engineering and Construction Management (OECM) on both External Independent Reviews (EIR) and guidance development. Mr. Gruber is also a member of working groups developing the EM Contingency Implementation Guide and the NNSA Project Definition Rating Index, and provides consulting support to NCSX Project, as well as the initiation of DOE's Global Nuclear Energy Partnership Program.

Mr. Gruber regularly performs independent reviews of cost estimates, schedules, risk management and project management processes and capabilities for the National Nuclear Security Administration and for DOE's Environmental Management Program. He managed a variety of Independent Cost Estimating tasks for Gilbert/Commonwealth, including the first independent cost estimate of DOE's Environmental Management Program, an effort that produced almost 1600 independent estimates and covered all DOE clean-up sites. He has also supported many other DOE internal and external independent project reviews, including EIRs of Office of Science projects as well as the Waste Treatment Plant at Hanford and serving as the lead technical support contractor for the U.S. Army Corps of Engineers' "Project EM". His experience also includes Independent Cost Estimates and consulting support to the Office of Civilian Radioactive Waste Management, Office of Nuclear Energy, and Office of Science, as well as various DOE projects and field offices, including the Yucca Mountain Project, the Accelerator Production of Tritium Project and the National Energy Technology Laboratory, and active involvement in the development/revision of DOE project management and cost estimating guidance and tools, including application of the Construction Industry Institute's Project Definition Rating Index to DOE projects.

Certification/Professional Affiliations

Certified Cost Consultant, No. 1009, originally certified February 27, 1975; current certification expires September 1, 2008.

Project Management Professional (PMP) certification through the Project Management Institute

Education

M.B.A., Finance, St. Joseph's University, Philadelphia, PA

B.A., Business Economics, Albright College, Reading, PA

Jeffrey Harris, ORNL
NCSX Deputy Project Manager

Jeffrey Harris is currently Deputy Project Manager of the National Compact Stellarator Experiment under construction at the Princeton Plasma Physics Laboratory. He is a Distinguished Research Staff Member in the Fusion Energy Division at Oak Ridge National Laboratory (ORNL), where he leads the ORNL stellarator research program.

Harris has spent most of his career working on multi-institutional collaborative projects. He has lived and worked as a researcher outside of the US for nearly 15 years, and works in English, French, and Russian.

Prior to his current appointment, from 1997 to 2005, Harris directed the H-1 Helic Major National Research Facility at the Australian National University in Canberra, and Professor and Head of Department for the Plasma Research Laboratory. He also led the development of research and education programs in wireless data communications and power electronics, and served as a consultant on wireless telecommunications policy to the Parliament of Australia.

From 1981 to 1997, he was a research staff member at ORNL, where he was responsible for the design of the magnetic configuration of the Advanced Toroidal Facility (ATF) stellarator, the development of the flexible heliac stellarator configuration used in the TJ-II device at the Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT) in Spain and the H-1 device in Australia, and the low-aspect-ratio torsatron configuration used in the TJ-K stellarator (originally built at CIEMAT, and now operating at the University of Stuttgart).

As an experimentalist, Harris has worked on confinement, stability, and turbulence experiments on the ORMAK tokamak at ORNL, the Proto-Cleo torsatron at the University of Wisconsin, the L-2 stellarator at the General Physics Institute in Moscow, the Heliotron-E stellarator at Kyoto University, Japan, ATF, the PBX-M tokamak at Princeton, and the H-1 stellarator in Australia. He studied edge-plasma rf interactions on the Tore Supra tokamak in Cadarache, France.

Harris is presently an associate editor of Physical Review Letters and a member of the editorial board of the Fusion Science and Technology journal.

Harris received his BS and MS degrees from MIT, and his PhD from the University of Wisconsin, all in electrical engineering. He has authored or co-authored more than 80 peer-reviewed publications, and holds two patents. He is a Fellow of the American Physical Society and the Australian Institute of Physics, and a Senior Member of the Institute of Electrical and Electronics Engineers. During his time at ORNL, he has received six achievement awards.

Phil Heitzenroeder, PPPL
NCSX Project Engineering Manager
Responsible Line Manager: Stellarator Design and Procurement

Phil Heitzenroeder is currently the Engineering Manager and the Stellarator Design and Engineering Manager for the National Compact Stellarator experiment under construction at the Princeton Plasma Physics Laboratory.

He is also heads the Mechanical Engineering Division, where he reports to Mike Williams. Prior to his current NCSX appointment, Phil was the Deputy Project Engineering Manager for NCSX and the Technical Representative for the modular coil prototypes and the (18) “production” modular coil winding forms.

Phil has held a variety of other managerial and technical positions during his 34 year career at PPPL including Acting Project Engineering Manager for the US ITER Project from July '04-February '06, FIRE Engineering Coordinator, TPX Vacuum Systems Manager, Project Engineer for TFTR Internal Support Structure/PF assembly, BPX Coil Design Coordinator, PBX-M PF Coil System Coordinator: Head of the PBX-M Engineering Branch, the Vacuum Branch, and the Coil Development Branch.

Phil's industrial experience includes 3 years at IBM and 1 year at Ingersoll-Rand Research.

Phil received a BS degree in Mechanical Engineering from the New Jersey Institute of Technology. He also completed 23 credit hours of graduate courses in engineering at NJIT and Syracuse University.

He has authored or co-authored numerous papers on fusion technology, is a member and former Chair of the IEEE/NPSS Standing Committee on Fusion Technology, and an associate member of ASME.

Phil is a PPPL Distinguished Engineering Fellow, and the 2006 recipient of the Kaul Award.

Michael Kalish, PPPL

NCSX Job Manager: Toroidal Field Coils / Trim Coils / Bakeout Systems

Michael Kalish is currently the responsible project engineer on NCSX for the TF Coils, Trim Coils, and Bakeout System. As project engineer Kalish has responsibility for all aspects of design, analysis, fabrication, and procurement. Kalish also had the responsibility for the design of the NCSX PF Coils and is responsible for overseeing Seismic requirements on NCSX

Kalish has been with Princeton Plasma Physics Laboratory since 1991. Prior to working on NCSX Kalish was the project engineer for the design and fabrication, of the NSTX Coil Deionized Water Cooling Systems and the High Pressure 350C Helium Bakeout System. As the responsible engineer Kalish also managed the operation of these systems and continues to provide technical support. Kalish also provides analysis and technical support to the NSTX project in the evaluation, repair and or upgrade of existing coil systems.

During the operation of TFTR Kalish was the responsible line manager for the Tritium Cleanup System and the Tritium Purification System. In addition to his responsibilities for overseeing day to day operations Kalish managed the design and implementation of major upgrades to these systems. Other tasks performed at PPPL include the design and seismic analysis for the support structure of BPX.

Prior to working at Princeton Plasma Physics Laboratory Kalish worked on the design, including thermal and structural analysis, of electronic avionics packages for military aircraft at ITT Avionics. His experience also encompasses vibration isolation and stress analysis in the design of “ruggedized” computer equipment for Concurrent Computer Corporation.

Other areas of expertise include thermal analysis, hydraulic analysis, stress analysis, gas and fluid flow calculations, seismic analysis, process pump and vacuum system design, coil design and fabrication techniques, familiarity with ASME Pressure Vessel Code.

Kalish received his BS in Mechanical Engineering from Rutgers University in 1983.

He has authored or co-authored numerous papers on various subjects relating to magnetic fusion engineering.

Jerry D. Levine, PPPL
Head, Environment, Safety and Health

Jerry Levine has served as Head, Environment, Safety and Health (ES&H) at PPPL since 1997, and has over 31 years experience in managing, coordinating and reviewing licensing, safety, and environmental matters for fusion energy research activities and the nuclear waste program. He provides leadership and management direction to ES&H Office personnel in support of PPPL ES&H policies and practices; formulates and implements Laboratory policies, procedures, and initiatives to achieve effective ES&H performance; and coordinates and interacts with DOE staff and legal counsels regarding the impacts associated with ES&H issues on Laboratory programs. Jerry directs an office of ten (10) safety professionals responsible for oversight and support of activities associated with radiation protection (health physics), electrical safety, construction safety, industrial hygiene, industrial safety, NEPA compliance and safety analysis.

Jerry's experience with PPPL, for which he became an employee in 1987 but actually began in 1976 as a contractor working for Ebasco Services, Incorporated, also include serving as the NEPA Compliance Manager for PPPL. In this capacity, he is responsible for ensuring that PPPL projects are reviewed for environmental impacts early in their life cycle, and that required NEPA determinations and approvals for PPPL NEPA documents are obtained from the Department of Energy (DOE). Jerry prepared and obtained DOE approval for the Environmental Assessment (EA) for the National Compact Stellarator Experiment (NCSX). He also led activities associated with approvals of Environmental Assessments (EAs) for deuterium-tritium experiments in the Tokamak Fusion Test Reactor (TFTR), decontamination and dismantlement of the TFTR, and construction and operation of the National Spherical Torus Experiment (NSTX). Jerry has led or had significant responsibilities for preparation, review and approval of the safety documentation associated with TFTR and NSTX.

While with Ebasco in 1985-87, Jerry served as Project Manager for the Battelle Office of Crystalline Repository Development (OCRD) Licensing Project Manager (LPM) Project. His responsibilities and duties included providing technical and administrative management and direction of staff engineers in the preparation of and revisions to the Crystalline Repository Project (CRP) Regulatory Compliance Plan, review and comments on OCRD and other CRP regulatory-related documents and reports, and provision of general regulatory assistance to OCRD regarding the proposed siting and licensing of a high-level nuclear waste repository in crystalline rock.

Jerry has authored or co-authored 14 papers on fusion safety topics.

Education: M.S., Polytechnic Institute of New York, 1976 - Nuclear Engineering
B.S., State University of New York at Stony Brook, 1974 - Physics and
Earth and Space Sciences (Astronomy)

**Judith Malsbury, PPPL
Head, Quality Assurance**

Ms. Malsbury serves as Head of the Quality Assurance Division at PPPL. The Quality Assurance Division is responsible for providing quality related services in support of PPPL's mission.

In this capacity, Ms. Malsbury is responsible for promoting awareness of quality principles, assisting management in establishing and maintaining policies, procedures, and the effort to implement PPPL's quality principles and Federal, State, and DOE requirements, commensurate with a risk and hazard based graded approach, to support all Laboratory personnel in their concern and endeavors to achieve the highest quality and cost-effective work, through quality services including support for procurements, audits, and inspections.

Previous work experience includes software engineer on telephony applications for Applied Data Research, technical staff member at Bell Laboratories, plus five years experience as examiner/senior examiner for NJ Baldrige program – three years on full applications, two years on mini-applications.

Ms. Malsbury is an ASQ Certified Quality Engineer, a Certified Manager of Quality, and Organizational Excellence, a Certified Quality Auditor, and a Certified Quality Software Engineer.

She is a Senior Member of the American Society for Quality, and an Active Member in the Princeton Section, serving primarily on the Program Committee.

Ms. Malsbury earned an M.S. in Computer Science, Stevens Institute of Technology, Hoboken, NJ; and a B.A. in Mathematics, Douglass College, Rutgers University, New Brunswick, NJ.

**Dr. George H. Neilson, Jr., PPPL
NCSX Program Integration Manager**

Dr. George H. “Hutch” Neilson is Project Integration Manager for the National Compact Stellarator Experiment (NCSX) at PPPL, a new facility being constructed to study the physics of compact stellarators. Dr. Neilson led the project from 1998 until 2007, during which time it advanced through a series of design stages and fabrication of the major components. His current focus is long-term planning for the transition to operation in 2012, and integration into the world stellarator research effort. The NCSX project is being carried out as a partnership between PPPL and Oak Ridge National Laboratory (ORNL).

Dr. Neilson came to PPPL in 1989 as a visitor and joined the staff in 1996 as a Principal Research Physicist and Deputy Head of the Advanced Projects Department. At PPPL, he led national physics design activities for a series of fusion experiment design projects, including the Burning Plasma Experiment (BPX), the Tokamak Physics Experiment (TPX), design studies for the International Thermonuclear Experimental Reactor (ITER), and the design of the Korea Superconducting Tokamak Advanced Research (KSTAR) project in collaboration with Korea.

From 1974 to 1996, Neilson was an experimental physicist and manager in the ORNL Fusion Energy Division. At ORNL, he worked on a series of tokamak and stellarator fusion confinement experiments, including ORMAK, ISX, and the Advanced Toroidal Facility (ATF). He led the ATF First Plasma task force in 1988.

Neilson earned his Ph.D. in Physics from the University of Tennessee, Knoxville, in 1979. He earned his B.S. and M.S. in Electrical Engineering from the Massachusetts Institute of Technology in 1973. Neilson’s research interests are design and construction of magnetic confinement experiments, plasma magnetics, and magnetic diagnostics. He has authored numerous papers on fusion plasma physics and design, served on several committees within the fusion program, and is a Fellow of the American Physical Society.

Erik D. Perry, PPPL
NCSX Job Manager: Final Machine and Plant Design and Assembly

Erik Perry is a Senior Engineer with Princeton Plasma Physics Laboratory, and serves as Job Manager for Final Machine and Plant Design, and Assembly for the NCSX Project, reporting to Larry Dudek.

Mr. Perry has served as the Construction Manager for the installation of the National Spherical Torus Experiment (NSTX), Project Manager for the decommissioning of the Tokamak Fusion Test Reactor (TFTR), the Princeton Beta Experiment, and the Princeton Large Torus. He currently serves as Outage Manager for NSTX.

Erik has over 29 years of experience in the design, fabrication, installation and testing of large, one-of-a-kind, high-technology devices. This experience includes analytical and hands-on work, as well as project management from initial design through installation.

Erik served as Project Manager for the Tokamak Fusion Test Reactor Decontamination and Decommissioning (D&D) Project. This project involved working with activated and tritium contaminated components within the rules and regulations of the Department of Energy, the Department of Transportation, and two federal disposal sites. The 3-year, \$40.3 million project was completed in September 2002 \$3.6 million under budget, utilizing 145 person-years of field work, and involved dismantling, packaging, and shipping over 50,000 cubic feet of radiological waste to approved disposal sites. The project was accomplished with no serious injury or radiological exposure to any personnel and with no harm to the environment, and resulted in the development of a technique, utilizing an innovative diamond wire cutting device, to segment the activated /contaminated vacuum vessel. This technique proved to be safer, faster and less expensive than conventional techniques.

Erik is a long-time member of the American Nuclear Society and the American Society of Mechanical Engineers.

He received the prestigious Kaul Foundation Prize for Excellence in Plasma Physics Research and Technology for his management of the TFTR D&D Project, which won awards as “The Project of the Year” and the “Outstanding Engineering Achievement” awards from the New Jersey Society of Professional Engineers, and DOE’s “Exceptional Public Service” and “Project Management” awards.

Mr. Perry earned a BSME degree in Mechanical Engineering from Cornell University (1974), and an MSE in Aerospace Structures from the University of Michigan (1975).

Steve Raftopoulos, PPPL
NCSX Job Manager: Cryostat / Cryogenic Systems

Steve Raftopoulos is the Cryogenics Engineer for the Princeton Plasma Physics Laboratory and Job Manager for cryostat and cryogenic systems for the National Compact Stellarator Experiment. He reports to the Mechanical Engineering Division.

Prior to his current assignment, Raftopoulos was Lead Metrology Engineer, and a Field Supervisor for the Modular Coil fabrication effort for NCSX. As metrology engineer, he was responsible for establishing the metrology program for the project, including selection of measurement equipment, developing the measurement methods, and ensuring that the components of the measurement process (equipment and personnel) were performing to required standards. As a coil winding supervisor he was responsible for the design of tooling for the coil winding facility, which included the coil turning fixtures and Vacuum-Pressure-Impregnation (VPI) autoclave oven, and subsequently was responsible overseeing the coil winding process.

Raftopoulos received a Bachelors of Science in Mechanical Engineering from the Cooper Union School of Engineering. His career has involved more than two decades of design, fabrication, installation, and the operation of numerous systems, including; diagnostics, RF heating, tritium systems, and vacuum systems at PPPL.

Subrahmanya (Raki) Ramakrishnan, PPPL
NCSX Job Manager: Electric Power

Raki Ramakrishnan is currently WBS4 (Electrical Power System) Manager for the National Compact Stellarator Experiment under construction at the Princeton Plasma Physics Laboratory, reporting to Al von Halle.

Raki is a principal engineer in PPPL. He came to PPPL to design the electrical system of TFTR as a consulting engineer with Ebasco Services, and performed the design of the AC system and part of the DC system of TFTR. Raki has been working in the design of Fission plants and Fusion devices over the last 35 years and has extensive experience in the design, installation, testing and operation of these devices. Raki has been instrumental in designing and implementing several important improvements and upgrades. Raki was the Electrical Power Systems Manager & NB Power System manager for NSTX for the design and construction phases, and the tasks were completed on schedule and within budget. Prior to joining the TFTR team, Raki was an electrical design engineer with Ebasco Services, and worked on the St. Lucie Nuclear Power Plant.

Raki received his MSEE from Indian Institute of Technology at Roorkee (India) where he was the recipient of the gold medal for ranking first in his class. He also received the Certificate in Fusion Reactor Technology from Princeton University, and a Master's Degree in Engineering Management from NJIT.

He is a licensed professional engineer in New Jersey. His career has included work in design of steel mill electrics, Fossil and Nuclear Power Plant design, and design of magnetic fusion devices.

He is a member of IEEE, IEEE's Power Conversion Committee, and Sigma Xi. Raki is also the recipient of a PPPL Employee Recognition Award, and has published several papers on the electrical power systems of Fusion devices in SOFE.

**Wayne Reiersen, PPPL
NCSX Systems Engineering Support**

Wayne Reiersen is providing systems engineering support to the National Compact Stellarator Experiment in Princeton, N.J. He is also currently serving as a systems engineer in the US ITER Project Office (USIPO) in Oak Ridge, TN. He is assisting the ITER International Organization (IO) in establishing a systems engineering program and is developing a complementary program for the USIPO.

Prior to his current appointment, he was Engineering Manager on the National Compact Stellarator Experiment from its inception in 1998, into the construction phase in 2007, and served as Systems Engineering Manager on the TPX Project (1992-1995), and as Engineering Manager of the US KSTAR Team (1995-1998).

Mr. Reiersen earned an M.S. in Nuclear Engineering from University of Tennessee (1984), where he attended on a Grumman fellowship, and a B.S. in Mechanical Engineering from Cornell University (1976).

He is a recipient of the David Rose award from Fusion Power Associates and is an Engineering Fellow at the Princeton Plasma Physics Laboratory.

**Don Rej, PPPL
NCSX Project Manager**

Don Rej is currently Project Manager for the National Compact Stellarator Experiment under construction at the Princeton Plasma Physics Laboratory, where he reports to Rob Goldston.

Prior to his current appointment, Rej was Program Director at Los Alamos National Laboratory (LANL) responsible for overseeing the entire portfolio of research LANL conducted for the DOE Office of Science. Rej led LANL Science & Technology Base Programs from 2004 until 2005, which included the Laboratory Directed Research & Development Program, Post-Doctoral Fellow and Student Intern Programs, University Partnerships, Research Library, and U. California assessments of LANL technical programs.

From 2000 until 2004, Rej was the LANL Spallation Neutron Source (SNS) Division Leader, where he led the Los Alamos contribution to the construction of the SNS at Oak Ridge, a \$1.4B joint venture between six DOE Laboratories. LANL was responsible for \$200M of scope that was successfully completed in 2004, and included RF linear accelerator physics, accelerating structures, high-power RF systems, beam diagnostics, and controls.

From 1996 until 2000, Rej was Deputy Director, and later Acting Director, of the Physics Division at LANL, where he managed a 360-person organization with an R&D portfolio that included experimental astrophysics, atomic physics, biological physics, hydrodynamics, nuclear physics, and plasma physics.

Rej received his Ph.D. in Applied Physics from Cornell University. His research career has included work in magnetic fusion, including the design, construction, operation, diagnostic measurements, and theoretical analysis of compact torus plasmas. Rej also built and managed an interdisciplinary program in advance materials synthesis with plasma and particle beam technologies.

He has co-authored over 60 peer-reviewed publications, 4 book chapters, and holds 2 patents. Rej is the recipient of a LANL Distinguished Performance Award, the Federal Laboratory Consortia Award for Excellence in Technology Transfer, an R&D 100 Award, and a DOE Defense Programs Award of Excellence.

Paul Sichta, PPPL

NCSX Job Manager: Controls, Instrumentation and Data Acquisition

Paul Sichta is the Job Manager of Central Instrumentation and Controls for the National Compact Stellarator Experiment, and reports to Al von Halle.

He is head of the Controls, Instrumentation and Data Acquisition branch at the Princeton Plasma Physics Laboratory (PPPL). Mr. Sichta leads a talented staff that provides computer operations, software, and hardware engineering services in support of the laboratory's research devices.

He began his Princeton career in 1981 designing data acquisition and control systems, computer bus interfaces, and synchronization systems for the Tokamak Fusion Test Reactor. He was the principle designer of the Central Control system for the National Spherical Torus Experiment.

Mr. Sichta earned a B.S. in Electronic Engineering from the Rochester Institute of Technology.

He has authored numerous scientific papers and articles about systems and applications for collaborative software and hardware development in fusion energy research.

Robert T. Simmons, PPPL
NCSX Systems Engineering Support Manager

Bob Simmons serves as the NCSX Systems Engineering Support Manager, and reports to Phil Heitzenroeder.

Mr. Simmons is responsible for directing and administering the systems engineering and configuration and data management programs for the project to ensure that the configuration is properly documented and that proposed changes are properly evaluated and adjudicated. He is then responsible to ensure that approved changes are implemented in a timely fashion.

Mr. Simmons is also involved with the superconducting magnet design effort for the US ITER fusion project, an international collaboration involving the US and six other international partners. ITER will be built in Cardarache, France.

Mr. Simmons has over thirty years of engineering management experience and has served on numerous Office of Science review teams of DOE Projects. His expertise on these reviews has been cost and schedule and engineering systems management. In addition, he had significant engineering experience as a nuclear trained submarine officer for over 25 years. He retired from the Navy with the rank of Captain.

He is a graduate of the United States Naval Academy with degrees in Mechanical Engineering and Nuclear Science. He also holds a MBA in Finance from The Ohio State University. He is a retired Professional Engineer in California.

He currently serves as a member of the Board of Governors of the American Society of Mechanical Engineers.

Brent Stratton, PPPL
NCSX Job Manager: Diagnostic Design and Fabrication

Brent Stratton is currently Head of the Diagnostics Development Division at the Princeton Plasma Physics Laboratory. He is responsible for development and implementation of new diagnostics for magnetic fusion experiments at PPPL, including the National Spherical Torus Experiment (NSTX) and the National Compact Stellarator Experiment (NCSX). He is the job manager for work breakdown system element 3 (Diagnostics) for NCSX, and reports to Larry Dudek.

Prior to his current appointment, Stratton worked on a variety of spectroscopic and optical diagnostics, including extreme ultraviolet spectroscopy and charge exchange recombination spectroscopy on the Tokamak Fusion Test Reactor (TFTR), spectroscopic measurements of non-thermal confined alpha particles produced by deuterium fusion reactions in TFTR, Motional Stark Effect measurements of the local magnetic field pitch angle in the Joint European Torus, and a fast soft x-ray camera for NSTX.

Stratton received his Ph.D. in Physics from The Johns Hopkins University in 1984 and has been employed at PPPL since 1985.

He is first author of over 25 peer-reviewed publications, including a review paper on passive spectroscopic diagnostics for magnetic fusion experiments. He is co-author of over 200 peer-reviewed publications.

**Ronald L. Strykowski, PPPL
NCSX Project Control Manager**

Ron Strykowski is Project Control Manager for the Compact Stellarator Experiment under construction at the Princeton Plasma Physics Laboratory. Ron has been assigned to the NCSX Project since October 2003. Ron reports both to Don Rej, the NCSX Project Manager, and Ed Winkler, Head of Business Operations.

Prior to his current assignment Ron was project controls manager for the TFTR D&D project from 2000 through 2002 where he provided cost and schedule control support for the dismantling and decommissioning of the Tokamak Fusion Test Reactor (TFTR). In recognition of his contributions to the successful dismantling of the Tokamak Fusion Test Reactor (TFTR), Ron was co-recipient of the Kaul Prize for Excellence in Plasma Physics Research and Technology Development. The award recognized the management of the Tokamak Fusion Test Reactor Decommissioning and Decontamination (D&D) Project, which was completed on schedule and under budget, as well as demonstrating that a large and complex fusion facility can be safely dismantled without significant radiological exposure to workers or harm to the environment.

Previous assignments included providing cost and schedule control systems for the design and construction of NSTX (an MIE project which was completed on time and within budget), NSTX Neutral Beam project (an MIE Upgrade to NSTX which was completed on time and within budget), TFTR D-T preparation (which prepared the project and PPPL as an institution for the handling and use of tritium on site) , as well as oversight of the PPPL cost and schedule control office whose primary function was to provide cost, scheduling and EVMS reporting for PPPL projects.

Ron received a bachelor's degree in civil engineering from Penn State University in 1973 and a professional engineering license in 1979.

Prior to joining PPPL in 1982, he worked in industry supporting the design and construction of nuclear power plants in the area of cost and schedule control. Current member of ASCE as well as past member of PMI and AACE.

Rodney D. Templon, PPPL
NCSX Procurement Manager

Mr. Templon is the Director of Procurement at PPPL.

1975-1978 US Army Communications and Electronics Command, Fort Monmouth, NJ
(Procurement Career Intern/Contract Specialist, GS-1102)
1978-1980 Princeton Plasma Physics Laboratory, Princeton, NJ (Subcontract Admin.)
1980-1982 Wharton School, University of Pennsylvania, Philadelphia, PA
(Grad. Student)
1982-Present Princeton Plasma Physics Laboratory, Princeton, NJ
1982-1984 Senior Subcontract Administrator
1984-1987 Procurement Operations Manager
1987-1994 Manager of Subcontracts
1994-Present Director of Procurement

Certified Professional Contracts Manager (CPCM), National Contract Management Association
(Certificate No. 4027), 1989; renewed through 2009

Certified Purchasing Manager (C.P.M.), Institute for Supply Management (Registration No.
28290), 1997; Lifetime, 2002

DOE Procurement Evaluation and Re-engineering Team (PERT) Peer Review Experience:

- Member, Peer Review Team, Lawrence Berkeley National Laboratory, January 2007
- Leader, Peer Review Team, Fermi National Accelerator Laboratory, May 2008

MBA, Wharton School, University of Pennsylvania, Philadelphia, PA
Graduate, DARCOM Procurement Career Intern Program, Fort Monmouth, NJ
BA, Psychology, Lycoming College, Williamsport, PA

Mike Viola, PPPL
NCSX Job Manager: Field Period Assembly

Mike Viola is a Mechanical Engineer for Princeton Plasma Physics Laboratory since 1980, and currently the Field Period Assembly Manager for NCSX, reporting to Larry Dudek.

Mike is also Lead Engineer for large neutral beam upgrades, responsible for tritium systems and diagnostic systems engineering. He has also served as Engineer in Charge for poloidal coil field fabrication for TFTR (Tokamak Fusion Test Reactor), and later as Chief Engineer in charge of operations.

Mike Viola P.E. obtained his BSME at Cornell in 1976. He then joined the US Navy and first served as the USS Forrestal's Electrical Officer and Force Weapons Coordinator and the USS Connable's Communications Officer and Tactical Action Officer until 1980. With the arrival of his first born, he left the Navy and joined Princeton Plasma Physics Laboratory (PPPL) as a mechanical engineer.

At PPPL, Viola first served as engineer in charge of poloidal coil field fabrication for the Tokamak Fusion Test Reactor (TFTR) and then the chief engineer in charge of TFTR operations. He continued with several appointments including Lead Engineer for large neutral beam upgrades; Tritium Systems Engineering Manager and Diagnostic Systems Engineering Manager; TPX Construction Manager, responsible for the initial feasibility studies and tokamak systems integration. In 1998 was assigned as the TFTR Construction Manager, in charge of the 3 year \$45M Decontamination and Decommissioning of TFTR delivered on time and on budget.

Viola was responsible for fusion device vacuum vessel procurements including the National Spherical Tokamak Experiment and the National Compact Stellarator Experiment (NCSX) vessels.

He has published several papers at various fusion related conferences. He has considerable crane operation, training and rigging experience; serves as the Lift Manager for PPPL and on the Department of Energy's national hoisting and rigging committee senior technical advisory board. He has contributed a significant portion of the language in the DOE Hoisting and Rigging Standard (DOE-STD-1090).

Alfred von Halle, PPPL
NCSX Responsible Line Manager: Electrical Systems

For the NCSX Project, Mr. von Halle reports to Phil Heitzenroeder, and serves as the Responsible Line Manager for electrical systems, which includes the experimental power systems, Instrumentation and Control, and the coordination of machine start-up activities.

Mr. von Halle manages the Electrical Engineering Division of the PPPL Engineering Department. He has 28 years experience in fusion engineering. His division is responsible for the design, maintenance, and operation of the Laboratory's experimental power systems, facility AC power systems, plasma heating systems, and electrical/electronic engineering.

Mr. Von Halle also manages the operations engineering function of the National Spherical Torus Experiment (NSTX). In this capacity, he provides coordination between engineering and physics operations to make the best use of allotted run time and maintains the general operating procedures that define NSTX start-up, operations, and training requirements.

During operation of the Tokamak Fusion Test Reactor (TFTR), Mr. von Halle managed the TFTR Heating and Fueling Division. This group was responsible for the operations and engineering of the TFTR neutral beams, the energy conversion systems, the ion cyclotron range of frequencies power systems, and the tritium systems. These technical systems routinely operated at or beyond original design criteria, maintaining an impressive machine availability of more than 85 percent through to the final night of operations. Safe operation of the TFTR systems in tritium was demonstrated with over 950 kCi of tritium processed during the experimental life of this device. Upon conclusion of TFTR operations, Mr. von Halle was responsible for organizing the safe shutdown and subsequent care taking of the facility.

Mr. von Halle came to PPPL in 1980 from the Electro-Flyte Division of the Black Clawson Company, manufacturers of custom-engineered DC motor drive systems. At Black Clawson, he was responsible for the design of DC static drive systems for the paper and plastics industries, and managed the engineering services group, which included field service engineers, technical writers, and customer training programs. He provided technical training for sales and service engineers operating worldwide, and designed and conducted training programs for users of Black Clawson equipment.

Mr. Von Halle received a B.S. in electrical engineering from the Milwaukee School of Engineering.

**Michael Zarnstorff, PPPL
NCSX Head of Research**

Michael Zarnstorff is the Head of the PPPL Stellarator Collaboration Division, and serves as the head of the NCSX Research Program, reporting to Don Rej.

Mike is a Principal Research Physicist at the Princeton Plasma Physics Laboratory. He was named a Distinguished Research Fellow by the laboratory in 1995, and teaches in the Astrophysics Department of Princeton University. He received his Ph.D. in Physics from the University of Wisconsin-Madison (1984).

Mike is an experimental plasma physicist with interests in the basic physics of plasma confinement. His research included the first observation and systematic study of the bootstrap current, investigations of neoclassical and turbulent transport, transport barriers, and the confinement and stability of different magnetic field configurations. He led the National Compact Stellarator Experiment physics design group, including setting the goals and mission for NCSX. Until 1997, he was one of the leaders of the TFTR experimental program. He has collaborated on stellarator and tokamak experiments across the US and in Germany, Japan, and the UK.

Mike is a fellow of the American Physics Society and has served on the Division of Plasma Physics' Executive Committee, Fellowship Committee, and Program Committee, and as a DPP Distinguished Lecturer. He is a member of the DOE Fusion Energy Science Advisory Committee (FESAC), has served on the National Research Council Plasma Science Committee, Burning Plasma Panel, the Panel on US-ITER participation, and on numerous advisory and review committees. He is vice-chair of the IEA Stellarator Agreement Executive Committee and of the US-BPO Council. He is a member of the Editorial Board for *Nuclear Fusion*.