

POWGEN3
**HIGH RESOLUTION THIRD GENERATION
POWDER DIFFRACTOMETER**

J. P. Hodges
*Experimental Facilities Division, Spallation Neutron Source,
Oak Ridge National Laboratory*

October 12th, 2005

Instruments and Scientists



Backscattering Spectrometer – BL 2
Ken Herwig
(865)576-5095 • herwigkw@sns.gov

Disordered Materials Diffractometer – BL 1b
Mike Simonson
(865)574-4962 • simonsonjm@ornl.gov

Wide-Angle Chopper Spectrometer (ARCS) – BL 18
Doug Abernathy
(865)576-5105 • abernathydl@sns.gov

High-Resolution Chopper Spectrometer (Sequoia) – BL 17
Garrett Granroth
(865)576-0900 • granrothge@sns.gov

High-Pressure Diffractometer – BL 3
Chris Tulk
(865)241-6481 • tulkca@sns.gov

Magnetism Reflectometer – BL 4a
Frank Klose
(865)576-5389 • klofefr@sns.gov

Liquids Reflectometer – BL 4b
John Ankner
(865)576-5122 • anknerjf@sns.gov

Neutron Spin Echo – BL 15
Dieter Richter
+49-(0)2461-61-2499/5774 • d.richter@fz-juelich.de

Hybrid Spectrometer (HYSPEC) – BL 14B
Mark Hagen • (865)241-6481 • crawfordrk@sns.gov

Cold Neutron Chopper Spectrometer – BL 5
Georg Ehlers • (865)576-3511 • ehlersg@sns.gov

Fundamental Physics Beam Line – BL 13
Geoffrey Greene
(865)574-8435 • greenegl@ornl.gov

Small-Angle Neutron Scattering Diffractometer – BL 6
Jinkui Zhao
(865)574-0411 • zhaoj@sns.gov

Single-Crystal Diffractometer – BL 12
Christina Hoffmann
(865)576-5127 • hoffmanncm@sns.gov

VISION – BL 7
John Larese • (865)974-3141 • jzl@utk.edu

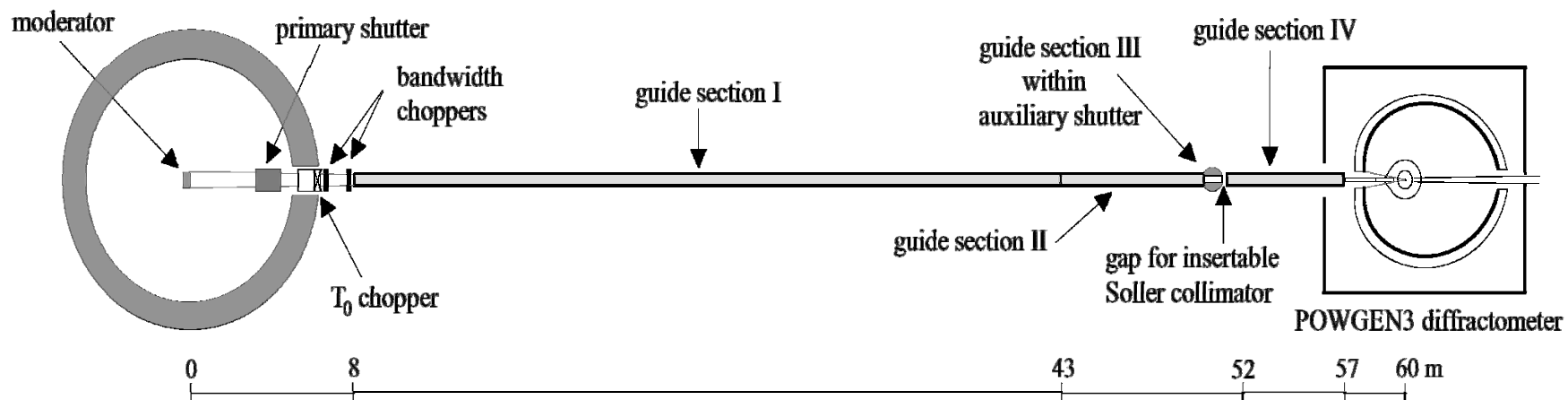
Powder Diffractometer (POWGEN) – BL 11a
Jason Hodges
(865)241-6481 • hodgessj@sns.gov

Engineering Diffractometer (VULCAN) – BL 9
Xun-Li Wang
(865)574-9164 • wangxl@sns.gov

Areas for User and Instrument Support

02-04152C/arm

POWGEN3 Layout



- **investigate structural response of materials to changing applied conditions and**
- **elucidate magnetic and non-magnetic crystal structures with unprecedented precision and speed.**

- **high- T_c superconductors**
- **colossal magnetoresistive perovskites**
- **metal-insulator transitions**
- **charge and orbital ordering transitions**
- **molecular magnets**
- **frustrated and spin-glass magnets**
- **heavy fermions**
- **permanent (large and fine particle) magnets**

- **Zeolite and AIPO frameworks**
- ionic conductors : **fuel cell, battery and sensor materials**
- **hydrogen storage, gas-hydrates**
- metals and semiconductors
- **dielectrics, ferroelectrics, thermoelectrics**
- negative thermal expansion oxides
- **catalysts, complex dehydroxylation mechanisms**
- minerals, cements, sialons
- **pharmaceuticals**

- IAT Introduction
- **Instrument Capabilities, Status & Detector Fabrication**
- **Highest priority 1st round experiments for POWGEN3**
- **Special sample equipment:**
 - **status of ongoing projects**
 - **seek consensus on what types of experiments and SEs should have highest priority for day 1**
- **Instrument upgrade:**
 - **matching detector coverage to high priority experiments**
 - **neutron spin polarization**