Malcolm John Cochran

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Citizenship: USA

Education

* May 2009 - BS, Chemistry, University of Tennessee, Knoxville, Summa Cum Laude

Experience

* 12/17 – Present – Scientific Associate for HFIR Beam Lines HB2A – Backup for CG4D and HB2C
  + Maintain safe and robust instrument operations
  + Develop, maintain, and ensure adherence to instrumental procedures
  + Provide training and 24/7 support for user operations
  + Experimental sample handling and management
  + Space management of instrument areas
  + Schedule and prepare for user experiments
  + DNP installation and support operations
  + Provide backup support for WAND^2
  + Conceive, design, coordinate, commission and implement instrument upgrades

HB2A MIDAS detector array – Prototypes in manufacturing

Sample stick height laser alignment jig

HB2A polarization rail with V-cavity and stages

HB2A sample stage enabling ULT sample changing and alignment

6 position sample stick for top loading CCRs

XYZ sample stage inside IMAGINE Kappa goniometer

IMAGINE integrated sample alignment stage

HFIR powder Quick Cans and Tip-top cans

10 Barr He powder sample sealer

HB2A sample room temp sample changer

* + - LDRD Shear Cell for SANS
* 11/2012 – 12/17 - Lead Engineer of the Neutron Spin Echo Spectrometer - SNS Beam Line 15 - Employed by Forschungszentrum Jülich GmbH at Oak Ridge National Laboratory
  + Maintain safe and robust instrument operations
  + Develop, maintain, and ensure adherence to instrumental procedures
  + Coordinate technical efforts for the instrument between FZJ in Germany and SNS in Oak Ridge
  + Provide training and 24/7 support for user operations
  + Experimental sample handling and management
  + Space management of instrument areas
  + Schedule and prepare for user experiments
  + Conceive, design, coordinate, commission and implement instrument upgrades
    - Coils for spin jamming experiments
    - Kink polarizer
    - Coils for TOFLAR proof of principle experiment
    - Electric field cell
    - Light Cell
    - High pressure cell
    - Temperature forcing system
    - Rheometer
    - Sample tumbler
    - Instrument air pad manifold
    - Alternate operating modes
* 12/2010 - 10/2012 - Instrument Associate on VISION - SNS Beam Line 16B. Employed by ORISE under contract to the Spallation Neutron Source at Oak Ridge National Laboratory
  + Oversee the design and installation of beam line components
  + Commissioning — Test and characterize major instrument systems
  + Experimental sample handling and management
  + Space management of instrument and ancillary laboratory
  + Maintain safe and robust instrument operations
  + Assist with conceptual design and coordinate instrument upgrades
  + Provide 24/7 support for user operations for a suite of instruments
    - VISION BL16B
    - Cross training on ARCS BL18, SEQUOIA BL17, CNCS BL5, and HYSPEC BL14B
* 8/2008 - 10/2010 - Research Coordinator II for Professor John Larese at the University of Tennessee, Knoxville
  + Provide first line supervision of students and post docs
  + Design, construction, management, testing, calibration, and presentation of various pieces of instrumentation
  + Neutron and X-ray cell and sample preparation
  + Synthesis, sample preparation, thermodynamic characterization, and data analysis of metal oxide samples
  + Operation, diagnosis, repair, and maintenance of high vacuum systems
  + Built, tested, and maintained UHP glove boxes
* 6/2006 - 8/2008 - Undergraduate Research Assistant in computational chemistry for Professor Robert Harrison at the University of Tennessee, Knoxville and Oak Ridge National Laboratory in Oak Ridge, TN
  + Wrote MD and Schrödinger simulations for use in Professor Harrison’s chemical programming classes in VBA, Python and C
  + Optimized the contraction coefficients of the p and d exponents of the aug-cc-pvdz basis set for DFT calculations using the b3lyp level of theory
  + Curve fitting to raw data for analytical group

Additional Information

* 2021 NSD Best Experiment Award for the collaborative development of new methods to understand polymer flow and deformation by SANS.
* 2020 NSD Doing it Better Award for Improving experiment capabilities and the user program operations in novel, innovative and creative ways.
* Awarded the Judson Hall Robertson Memorial Instrumental Analysis Award on April 29, 2010, by the Department of Chemistry, University of Tennessee, Knoxville
* Presented the talk “Neutron Spin Echo Sample Environments — Current and Future” at the DENIM Engineering Workshop for Neutron Scattering Instruments in Ismaning, Germany in September 2014