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