

Projects SNI PhD School 2022

Project	Principle Investigator (PI) and Co-PI	PhD student
P1503 Watching giant multienzymes at work using high-speed AFM	T. Maier (Univ. Basel) R. Y. H. Lim (Univ. Basel)	S. Singh
P1602 Self-assembly and magnetic order of 2D spin lattices on surfaces	T. A. Jung (Univ. Basel) J. Dreiser (PSI)	M. Heydari
P1603 A mechano-optical microscope for studying force transduction in living cells	R. Lim (Univ. Basel) E. Meyer (Univ. Basel)	T. Kozai
P1701 Van der Waals 2D semiconductor nanostructures with superconducting contacts	A. Baumgartner (Univ. Basel) C. Schönenberger (Univ. Basel)	M. Ramezani
P1702 Single organelle size sorting by a nanofluidic device	Y. Ekinici (PSI) H. Stahlberg (Univ. Basel)	T. Mortelmans
P1704 Evolving protease enzymes with new sequence specificity using peptide-hydrogel cell encapsulation	M. Nash (Univ. Basel) S. Reddy (D-BSSE, ETHZ Basel)	J. López Morales
P1705 Genetic selection of nanocatalysts	S. Panke (D-BSSE, ETHZ Basel) T. Ward (Univ. Basel)	E. Rousounelou
P1706 Ultrasensitive force microscopy and cavity optomechanics using nanowire cantilevers	M. Poggio (Univ. Basel) F. Braakman (Univ. Basel)	D. Jaeger
P1707 Nano-photonics with van der Waals heterostructures	R. Warburton (Univ. Basel) I. Zardo (Univ. Basel)	L. Sponfeldner
P1801 Bioinspired nanoscale drug delivery systems for efficient targeting and safe <i>in vivo</i> application	J. Huwyler (Univ. Basel) C. Palivan (Univ. Basel)	C. Alter
P1802 From Schrödinger's equation to biology: Unsupervised quantum machine learning for directed evolution of anti-adhesive peptides	M. Nash (Univ. Basel) A. von Lilienfeld (Univ. Basel)	V. Doffini
P1803 Nanoscale mechanical energy dissipation in quantum systems and 2D-materials	E. Meyer (Univ. Basel) M. Poggio (Univ. Basel)	A. Ollier
P1805 High-throughput multiplexed microfluidics for antimicrobial drug discovery	E. van Nimwegen (Univ. Basel) V. Guzenko (PSI)	M.-E. Alaball Pujol
P1806 Image the twist!	V. Scagnoli (PSI) P. Maletinsky (Univ. Basel)	S.K. Treves
P1807 Andreev Spin Qubit (ASQ) in GeSi nanowires	C. Schönenberger (Univ. Basel) F. Braakman (Univ. Basel)	J.H. Ungerer
P1808 Quantum dynamics of an ultracold ion coupled to a nanomechanical oscillator	S. Willitsch (Univ. Basel) M. Poggio (Univ. Basel)	M. Weegen

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P1901 Microfluidics to study Huntington's Disease by visual proteomics	T. Braun (Univ. Basel) H. Stahlberg (Univ. Basel)	A. Fränkl
P1902 Directional 3D nanofiber network to mimic in-vivo myocardial syncytium towards guiding contraction patterns in <i>in-vitro</i> heart models	M. Gullo (FHMW Muttenz) M. Poggio (Univ. Basel)	F. Züger
P1903 Neutron nanomediators for non-invasive temperature mapping of fuel cells	M. Kenzelmann (Univ. Basel/PSI) P. Boillat (PSI)	A. Ruffo
P1904 Revealing protein binding dynamics using time-resolved diffraction experiments at SwissFEL	C. Padeste (PSI) T.R. Ward (Univ. Basel)	M. Carrillo
P1905 Magnetic force microscopy with nanowire transducers	M. Poggio (Univ. Basel) E. Meyer (Univ. Basel)	L. Schneider
P1906 Machine learning assisted design of heteromeric self-assembled molecular capsules	K. Tiefenbacher (Univ. Basel) A. von Lilienfeld (Univ. Basel)	I. Martyn
P1907 Spin-opto-nanomechanics	P. Treutlein (Univ. Basel) P. Maletinsky (Univ. Basel)	G.-L. Schmid
P1908 Chiral recognition in molecular nanowires from square-planar Platinum(II) complexes	O. Wenger (Univ. Basel) C. Sparr (Univ. Basel)	A. Huber
P2001 Imaging cardiovascular macro- and micro-structure using HfO ₂ nanocrystals as X-ray tomography	J. de Roo (Univ. Basel) A. Bonnin (PSI)	E. Maksimova
P2002 A death-dealing bacterial nanomachine	R. Lim (Univ. Basel) M. Basler (Univ. Basel)	M. Brüderlin
P2003 Nanoscale quantum sensing of complex spin systems in extreme environments	P. Maletinsky (Univ. Basel) M. Poggio (Univ. Basel)	J.A. Zuber
P2004 Local manipulation of spin domains in a multi-ferroic Rashba semiconductor	M. Muntwiler (PSI) T. Jung (Univ. Basel)	M. Heinrich
P2005 Transmembrane protein-mediated loading of synthetic compartments	C. Palivan (Univ. Basel) R.A. Kammerer (PSI)	P. Jaško
P2006 RESTRAIN – Reticular chemistry at interfaces as a form of nanotechnology	P. Shahgaldian (FHNW) J. De Roo (Univ. Basel)	A. Roshan
P2007 Development of nanoscale acoustic tweezers for mechanobiology application	S. Tsujino (PSI) R. Lim (Univ. Basel)	S. Jia
P2008 Scanning nanowire quantum dot	D. Zumbühl (Univ. Basel) M. Poggio (Univ. Basel)	L. Forrer
P2009 Hybrid van der Waals heterostructures for vertical, permeable-base organic transistors	M. Calame (Univ. Basel) H.-J. Hug (Empa)	J. Oswald

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P2101 A planar nanofabrication process for coupled Schrödinger-cat qubits in parametrically-driven nonlinear superconducting resonators	A. Grimm (PSI) C. Bruder (Univ. Basel)	A. Bruno
P2102 Structure and assembly mechanism of the Ninnurin-1 membrane perforation pore in executing cell death	S. Hiller (Univ. Basel) D. Müller (ETHZ D-BSSE)	M. Degen
P2103 Goldnanoparticle assemblies for SERS based detection of EGFR expressing ovarian cancer cells in tumor xenografts	S. Saxer (FHNW Muttentz) V. Heinzelmann (Univ Basel)	A. Stumpo
P2104 Methods to understand the role of ordered waters and disordered residues in enzyme catalysis using macromolecular crystallography at physiological temperatures	F. Seebeck (Univ. Basel) J. H. Beale (PSI)	S. Bolotova
P2105 Ferromagnetism of mobile electrons in a two-dimensional semiconductor	R. Warburton (Univ. Basel) M. Poggio (Univ. Basel)	R. Kaiser
P2106 Innovative catalytic strategies to combat cancer	T. R. Ward (Univ. Basel) M. Fani (Univ. Basel)	D. A. Graf
P2107 High-sensitive torque magnetometry for 2D materials	I. Zardo (Univ. Basel) M. Poggio (Univ. Basel)	M. Claus