

5th Workshop on Optically Pumped Magnetometers 2017

Oral presentations

Monday, August 21st

#	Speaker	Title	Time
		Welcome and Introduction	08:30 – 08:50
Session 1: Basic OPM research			
Chair: Peter Schwindt / Dmitry Budker			
T01	Werner Heil	Ultrasensitive ³ He NMR-Magnetometry for Measurements of High Magnetic Fields	08:50 – 09:10
T02	Skyler Degenkolb	Optical Magnetometry using Multiphoton Transitions and Polarized Nuclei	09:10 – 09:30
T03	Volkmar Schultze	The LSD-M _z Magnetometer – Working Principle, Properties and Applications	09:30 – 09:50
		Coffee break	09:50 – 10:30
T04	Lu Deng	Nonlinear Optical Wave Mixing Magnetometry	10:30 – 10:50
T05	Michael Romalis	Pulsed Scalar Atomic Magnetometer with Multi-Pass Cells	10:50 – 11:10
T06	Ricardo Jimenez Martinez	Precise signal-tracking with precessing spin ensembles	11:10 – 11:30
T07	Witold Chalupczak	Non-linear spin dynamics in atomic magnetometers	11:30 – 11:50
		Lunch	11:50 – 13:10
Session 2: Novel OPM designs			
Chair: Michael Romalis / Antoine Weis			
T08	Arne Wickenbrock	Towards endoscopic magnetic field sensors based on diamonds for biomedical applications	13:10 – 13:30
T09	Andreas Pollinger	Flight Model Design of the Coupled Dark State Magnetometer for the China Seismo-Electromagnetic Satellite	13:30 – 13:50
T10	Ilja Gerhardt	Combination of Atomic Magnetometry with Solid State Samples	13:50 – 14:10
		Coffee break	14:10 – 14:50
T11	Yosuke Ito	A Simultaneous Multi-Location Measurement Method Based on Pump-Beam Modulation of Atomic Magnetometers by Electro-Optic Modulation	14:50 – 15:10
T12	Thomas Kornack	Towards a Practical Pulsed Magnetometer	15:10 – 15:30
T13	Guzhi Bao	Suppression of nonlinear Zeeman effect and heading error in earth-field alkali-vapor magnetometers	15:30 – 15:50
T14	Stuart Ingleby	Double Resonance Magnetometry in Arbitrarily Oriented Static Fields	15:50 – 16:10
		Posters	16:10 – 18:10
		Workshop dinner	19:30 – ∞

Oral presentations
Tuesday, August 22nd

#	Speaker	Title	Time
Session 3: Biomagnetic Applications of OPMs Chair: Tilmann Sander / Lauri Parkkonen			
T15	Tim Tierney	Realising the advantages of OPM-MEG: Scanner casts and data modelling	08:30 – 08:50
T16	Elena Boto	OPM MEG with field nulling technology: Towards real world neuroimaging	08:50 – 09:10
T17	Amir Borna	Magnetoencephalography with a 20-Channel Optically Pumped Magnetometer Array	09:10 – 09:30
T18	Joonas Iivanainen	Quality of Visual Gamma-band Responses Measured with an Optically-pumped Magnetometer	09:30 – 09:50
Coffee break			09:50 – 10:30
T19	Sean Krzyzewski	Development of a microfabricated optically-pumped magnetic gradiometer array for integration with a transcranial magnetic stimulation	10:30 – 10:50
T20	Kaiyan He	Magnetoencephalography with a Cs-Based High-Sensitivity Compact Atomic Magnetometer	10:50 – 11:10
T21	Vishal Shah	Towards Second-Generation Commercial OPMs for BioMagnetism	11:10 – 11:30
T22	Kasper Jensen	Quantum Optical Magnetometry for Biomedical Applications	11:30 – 11:50
Lunch			11:50 – 13:10
Session 4: Other Applications of OPMs Chair: Svenja Knappe / Tetsuo Kobayashi			
T23	Theo Scholtes	The Global Network of Optical Magnetometers for Exotic Physics searches	13:10 – 13:30
T24	Derek Kimball	Constraints on the coupling of the proton spin to gravity	13:30 – 13:50
T25	Georg Bison	Optical magnetometers for a next-generation neutron EDM experiment	13:50 – 14:10
Coffee break			14:10 – 14:50
T26	Midhat Farooq	³ He Optical Magnetometer for the Absolute Calibration of Muon g-2 Magnetic Field Measurement	14:50 – 15:10
T27	Simone Colombo	Atomic Magnetometry Based Magnetic Particle Imaging (MPI)	15:10 – 15:30
T28	Rahul Mhaskar	Applications of Miniature Scalar Atomic Magnetometers	15:30 – 15:50
T29	Valerio Biancalana	Zero-to-Ultralow-Field-NMR spectroscopy with an atomic magnetometer in unshielded environment	15:50 – 16:10
Posters			16:10 – ∞

Poster presentations

Part 1

Presenter	Title	#
Section 1: OPM basic research		
Dong Sheng	Optically Pumped Magnetometry at USTC	P01
Victor Lebedev	Study of the Directional Dependence of Magnetic Resonance Signals in Orientation-Based Atomic Mx-Magnetometers	P02
Zoran Grujić	Accurate Cesium Magnetometer Based on Free Alignment Precession	P03
Morgan Mitchell	On the statistical sensitivity and quantum limits of spin noise spectroscopy	P04
Yongqi Shi	The Ground State Hanle Effect with Linearly-Polarized and Unpolarized Light	P05
Charikleia Troullinou	Towards a high-density squeezed-light magnetometer	P06
Carolyn O'Dwyer	Test System for Investigation of Geometry Dependent Systematic Effects in Double Resonance Magnetometry	P07
Rob IJsselsteijn	On the Heading Error of Various OPM Types	P08
Vira Bondar	Sensitive and stable Hanle-type 2D magnetometer	P09
Dominic Hunter	Chip-scale Atomic Magnetometer Based on Free Induction Decay for Ultra-low Magnetic Field Detection	P10
Michaela Ellmeier	Comparison of Two Sensor Designs for the Coupled Dark State Magnetometer	P11
François Beato	Laser frequency locking using a transversal magnetic field for helium-based magnetometers	P12
Lu Deng	Theory of Nonlinear Optical Wave Mixing Magnetometry	P13
Section 2: Fundamental Science with OPM		
Peter Koss	A Potassium Magnetometry Based Current Source for the n2EDM Experiment at PSI	P14
Vincent Dumont	Cross-correlation analysis between Optically-Pumped Magnetometers for Dark Matter searches	P15
Hector Masia Roig	Description and Characterization of the Optical Magnetometer in Mainz Dedicated to the Global Network of Optical Magnetometers for Exotic Physics Searches (GNOME)	P16
Mikhail Padniuk	Self-compensating atomic magnetometer for searches of transient anomalous spin couplings	P17
Yunlan Ji	Detecting J-coupling in the gaseous molecule by spin-exchange optical pumping	P18

Poster presentations

Part 2

Presenter	Title	#
Section 3: OPM Applications		
Vladimir Dolgovskiy	An Optically-Pumped Magnetometer for Field Mapping and Reconstruction of Distributed Source Locations	P19
Elena Boto	Multi-channel OPM-MEG during a visuo-motor task: induced responses and source localisation	P20
Sofie Meyer	Designing a cryogen-free MEG system for hippocampal recording	P21
Leonardo Duque-Muñoz	Estimating the geometry of OPM sensor arrays relative to the human brain	P22
Niall Holmes	Towards wearable OPM-MEG: Using bi-planar field nulling coils to allow subject movement	P23
George Roberts	Exploring Crosstalk in an Optically Pumped Magnetometer Array for Magnetoencephalography – Simulation and Experiment	P24
Tim Tierney	Accuracy and Reliability of a multi-channel OPM MEG System for presurgical planning	P25
Tilmann Sander	High subject throughput individualized OPM sensor array	P26
Tilmann Sander	Multivariate statistical analysis of OPM sensor array data	P27
Aaron Jaufenthaler	Exploiting Optically Pumped Magnetometer's Flexibility To Optimize The Problem Conditioning In Magnetorelaxometry Imaging	P28
Gaëtan Lieb	Helium-based OPM for room-temperature bio-magnetic measurements	P29
Christoph Braun	Can Optically Pumped Magnetometers (OPM) Capture Neuromagnetic Activity of Peripheral Nerves and the Spinal Cord?	P30
Rasmus Zetter	Co-registration in On-scalp Magnetoencephalography Based on Optically-pumped Magnetometers	P31
Christian Schmidt	Optically pumped magnetic field camera – A proposal	P32
Dmitrii Altukhov	OPM versus SQUID Arrays in MEG Functional Connectivity Estimation: A Simulation Study	P33
Axel Thielscher	Wide-Field Imaging of Magnetic Fields Using Nitrogen-Vacancy Centers in Diamond: Estimation of required sensitivity and resolution	P34