

## NORDITA Conference Program

22 - 26 June, 2015

Location: FD4 (*Oskar Klein Auditorium*), Albanova, Stockholm.

### June 22 Monday

8:30 – 9:30 *Registration & Coffee*

9:30 – 9:45 *Welcome from Organizers and Announcements*

#### **Morning Session (Chair: Glennys Farrar)**

##### ***Observation of cosmological magnetic fields: Gamma rays***

9:45 – 11:05

- 1.1 Hiroyuki Tashiro (25+5): “Intergalactic helical magnetic fields and parity odd signatures in the diffuse gamma ray sky.”
- 1.2 Andrew Long (15+5): “Morphology of blazar-induced gamma ray halos.”
- 1.3 Tanmay Vachaspati (25+5): “Search for helical primordial magnetic fields.”

11:05 – 11:30 *Coffee*

11:30 – 12:30

- 1.4 Wenlei Chen (25+5): “Evidence for GeV pair halos around low redshift blazars.”
- 1.5 Chiara Caprini (25+5): “Gamma ray observations of blazars and the intergalactic magnetic field spectrum.”

12:30 – 2:00 *Lunch*

#### **Afternoon Session (Chair: Kandaswamy Subramanian)**

##### ***Signature of cosmological magnetic fields: CMB***

2:00 – 3:30

- 1.6 Fabio Finelli (25+5): “Cosmological results from Planck 2015 and primordial magnetic fields.”
- 1.7 Levon Pogosian (25+5): “Primordial magnetism and CMB.”
- 1.8 Kerstin Kunze (25+5): “Damping of magnetic fields, CMB anisotropies and spectral distortions.”

3:30 – 4:00 *Coffee Break*

4:00 – 5:20

- 1.9 Mathieu Langer (25+5): “Constraining the evolution of cluster magnetic fields with the CMB”
- 1.10 Tuhin Ghosh (25+5): “E and B modes of dust polarization.”
- 1.11 Pranjal Trivedi (15+5): “Probing primordial magnetic fields using CMB and non-Gaussianity.”

5:20 – 6:00

- Open Discussion

6:00 – 7:30 *Informal reception. Dinner on your own.*

### June 23 Tuesday

#### **Morning Session (Chair: Levon Pogosian)**

##### ***Origin of cosmological magnetic fields***

9:00 – 10:30

- 2.1 Bharat Ratra (25+5): “Inflation magnetogenesis.”
- 2.2 Kandaswamy Subramanian (25+5): “Inflationary generation of primordial magnetic fields and the strong coupling problem.”
- 2.3 Takeshi Kobayashi (25+5): “Schwinger Effect Constraints on Primordial Magnetic Fields.”

10:30 – 11:00 *Coffee Break*

11:00 – 12:40

- 2.4 Anupam Mazumdar (25+5): “Magnetic field generation via preheating.”
- 2.5 Francesc Ferrer (25+5): “Production of helical magnetic fields during baryogenesis.”
- 2.6 Andrew Long (15+5): “Generating a helical B field from leptogenesis.”

12:20 – 2:00 *Lunch*

### **Afternoon Session (Chair: Dario Grasso)**

#### ***Origin from MHD***

2:00 – 3:30

- 2.7 Reinhard Schlickeiser (25+5): “Cosmic magnetogenesis: from spontaneously emitted aperiodic turbulence to ordered equipartition fields.”
- 2.8 Jungyeon Cho (25+5): “Turbulence dynamo and origin of magnetic field in the ICM.”
- 2.9 Jennifer Schober (25+5): “The origin of strong magnetic fields in the galaxies.”

3:30 – 4:00 *Coffee Break*

4:00 – 5:00

- 2.10 Ulrich Kolberg (15+5): “Spontaneously emitted field fluctuations and the genesis of cosmic magnetic fields.”
- 2.11 Patrick Adams (15+5): “Magnetogenesis experiments using a modified Chaplygin gas EOS.”
- 2.12 Jean-Baptiste Durrive (15+5): “Magnetogenesis at cosmic dawn.”

5:00 – 6:00

- Open Discussion

6:30 – 9:30 *Conference Dinner*

### **June 24 Wednesday**

#### **Morning Session (Chair: Reinhard Schlickeiser)**

#### ***Magnetic field evolution***

9:00-10:30

- 3.1 Axel Brandenburg (25+5): “Nonhelical inverse transfer of a decaying turbulent magnetic field.”
- 3.2 Tina Kahniashvili (25+5): “Evolution and signatures of helical magnetic fields.”
- 3.3 Robi Banerjee (25+5): “Evolution of primordial magnetic fields and constraints on extragalactic fields.”

10:30 -11:00 *Coffee Break*

11:00-12:30

- 3.4 Victor Semikoz (25+5): “Growth of primordial magnetic fields provided by the lower bound on relic neutrino asymmetries.”
- 3.5 Oleg Ruchaiskiy (25+5): “Chiral relativistic MHD.”
- 3.6 Alexey Boyarsky (25+5): “Inverse cascade without turbulence.”

12:30 – 2:00 *Lunch*

## **Afternoon Session (Chair: Oleg Ruchaiskiy)**

### ***Magnetic field evolution***

2:00-4:10

- 3.7 Andrey Beresnyak (25+5): "Turbulence, heating and dynamos in galaxy clusters."
- 3.8 Karsten Jedamzik (25+5): "Evolution of Magnetic Fields."
- 3.9 Andrey Saveliev (25+5): "Novel computational methods for the determination of properties of extragalactic magnetic fields."
- 3.10 Alexander Tevzadze (15+5): "Evolution of magnetic fields in large scale anisotropic MHD flows."
- 3.11 Garcia Andrade (15+5): "Amplification of magnetic fields by galaxy compression Lorentz breaking."

4:10 – 6:00 *Wine, Cheese, & Open Discussion*

6:00 – *Dinner on your own.*

## **June 25 Thursday**

### **Morning Session (Chair: Robi Banerjee)**

#### ***Structures and magnetic fields***

9:00-10:30

- 4.1 Glennys Farrar (25+5): "Inferring the Galactic Magnetic Field from observations."
- 4.2 Dario Grasso (25+5): "Galactic magnetic fields and unconventional cosmic ray propagation."
- 4.3 Giuseppe Di Bernardo (25+5): "Galactic magnetic fields and diffuse synchrotron radiation emission."

10:30 – 11:00 *Coffee Break*

11:00 – 12:30

- 4.4 Dongsu Ryu (25+5): "Magnetic fields in clusters of galaxies."
- 4.5 Ann Mao (25+5): "Probing the evolution of galactic magnetic fields."
- 4.6 JinLin Han (25+5): "Tomography for magnetic fields in our Milky Way and in the nearby universe."

12:30 – 2:00 *Lunch*

### **Afternoon Session (Chair: Francesc Ferrer)**

#### ***10+2 on magnetic fields***

2:00 – 3:24

- 4.7 Moritz Linkmann (10+2): "Nonuniversality and finite dissipation in decaying magnetohydrodynamic turbulence."
- 4.8 Denis Witor (10+2): "A Lagrangian view of turbulence and magnetic fields."
- 4.9 Jane Kaczmarek (10+2): "High resolution, broad-band radio polarimetry of radio galaxy NGC 612."
- 4.10 Anna Williams (10+2): "Magnetic fields in NGC 6946 using wide-band radio polarimetry."
- 4.11 Craig Anderson (10+2): "Ultra broad-band spectropolarimetry of polarized radio sources."
- 4.12 Chris Herron (10+2): "Novel properties of magnetized interstellar turbulence from diffuse synchrotron emission."
- 4.13 Luke Chamandy (10+2): "Non-linear galactic dynamos and magnetic pitch angles."

3:24 – 3:40 *Water Break*

3:40 – 4:52

- 4.15 Alhashmi Darah (10+2): “Non-axisymmetric magnetic field generation within an ambient field.”
- 4.16 Sergei Vafin (10+2): “The marginal instability condition of the aperiodic ordinary mode for counter-stream bi-Maxwellian distribution function.”
- 4.17 Gabriella Piccinelli (10+2): “Magnetic contribution to a warm inflation process.”
- 4.18 Rajeev Jain (10+2): “Non-gaussian imprints of primordial magnetic fields from inflation.”
- 4.19 Riona Ramraj (10+2): “A Polarization Study of AGN in the Local Universe.”
- 4.20 Jacques Wagstaff (10+2): “CMB spectral distortions from the decay of causally generated magnetic fields.”

5:00 – *City sightseeing. Dinner on your own.*

## **June 26 Friday**

### **Morning Session (Chair: Kerstin Kunze)**

#### ***Structures and magnetic fields***

9:00-10:30

- 5.1 Takuya Akahori (25+5): “Exploring Faraday rotation due to the intergalactic magnetic field with SKA.”
- 5.2 Niels Oppermann (25+5): “Cosmic magnetism revealed through Faraday rotation.”
- 5.3 Jamie Farnes (25+5): “Evolving cosmic magnets – a key experiment for the Square Kilometer Array.”

10:30 – 11:00 *Coffee Break*

11:00 – 12:00

- 5.4 Christopher Hales (15+5): “A new probe of the magnetic field power spectrum in cosmic web filaments.”
- 5.5 Emil Lenc (15+5): “Probing diffuse linear polarization with the MWA.”
- 5.6 Jean-Francois Robitaille (15+5): “A new multiscale analysis of the gradient of linear polarization.”

12:00 – 12:30

- 5.7 Summary Remarks – Kandaswamy Subramanian

**Goodbyes.**