A workshop on

The high-energy astrophysics of outflows from compact objects

held at

Ringberg Castle, Tegernsee,

December 7th - 13th, 2008

organized by

John Kirk (MPI-K) & Christian Fendt (MPIA)

Program (as of Dec. 13th, 2008):

**Sunday, December 7th**
18:30 – 20:00 Welcome snack & drinks

**Monday, December 8th**
09:00 - 09:15 Welcome, LOC announcements (John Kirk & Christian Fendt)
09:15 - 09:45 Mitch Begelman: Relativistic outflows: unsolved problems
09:45 - 10:15 Robert Laing: Precision jet physics: observations and models of large-scale relativistic outflows in radio galaxies
10:15 - 10:45 Coffee break
10:45 - 11:15 Aneta Siemiginowska: AGN jets
11:15 - 11:45 Andrei Beloborodov: GRB explosions
11:45 - 12:15 Yves Gallant: High-energy observations of pulsar wind nebulae
12:30 - 14:00 Lunch break
14:00 - 14:30 Michal Ostrowski: Monte-Carlo modelling of particle acceleration at relativistic shocks and observational constraints
14:30 - 15:00 Henk Spruit: Jet launching: The disk-jet boundary
15:00 - 15:30 Coffee break
15:30 - 16:00 Heino Falcke: The power of jets
16:00 - 16:30 Fumio Takahara: A fireball mechanism of relativistic outflow production in AGN
16:30 - 17:00 Elena Amato: Theory of pulsar wind nebulae
18:30 - 19:30 Dinner break
20:00 - 20:30 Judith Croston: Strong shocks and particle acceleration from expanding radio-galaxy lobes
20:30 - 21:00 Frederic Daigne: High-energy emission in GRBs
21:30 - 24:00 Social evening @ Ringberg castle
Tuesday, December 9th

09:15 - 09:45 Anatoly Spitkovsky: Particle acceleration in collisionless shocks

09:45 - 10:15 Guillaume Dubus: High-energy astrophysics of outflows from gamma-ray binaries

10:15 - 10:45 Coffee break

10:45 - 11:15 Petar Mimica: Spectral evolution of superluminal components in parsec-scale jets

11:15 - 11:45 Rony Keppens: Extragalactic jets with helical magnetic fields: relativistic MHD simulations

11:45 - 12:15 Siming Liu: Energy dissipation and particle acceleration in MHD turbulence: Generated at collision-less astrophysical shocks

12:30 - 14:00 Lunch break

14:00 - 14:30 Ioannis Contopoulos: The 3D-structure of the pulsar magnetosphere

14:30 - 15:00 Thomas Krichbaum: Looking into the center of Active Galactic Nuclei

15:00 - 15:30 Zakaria Meliani: Stability of relativistic two-component jets

15:30 - 16:00 Coffee break

16:00 - 16:30 Sebastian Jester: De-beaming of observations of relativistic jets

16:30 - 17:00 Denise Gabuzda: New evidence for helical B-fields associated with AGN jets

17:00 - 17:30 Masahiro Hoshino: Particle acceleration and injection problem in collisionless shocks

17:45 - 18:30 Tour through the castle

18:30 - 19:30 Dinner break

20:00 - 22:00 Poster session with beer & wine

Wednesday, December 10th

09:00 - 09:30 Dan Schwartz: Chandra observations of relativistic quasar jets

09:30 - 10:00 Reinhard Schlickeiser: Synchrotron and synchrotron self-Compton light curves of flaring blazars

10:00 - 10:30 Jose Gracia: Synthetic synchrotron emission maps from MHD models for the jet of M87

10:30 - 11:00 Coffee break

11:00 - 11:30 Andrew Taylor: The UHE cosmic ray composition and neutrino fluxes from relativistic outflows

11:30 - 12:00 Boris Stern: Photon breeding mechanism of the blazar emission: working regimes and observational signatures

12:00 – 12:30 Serguei Komissarov: Blandford-Znajek mechanism and GRB jets

12:30 - 14:00 Lunch break

14:30 - 18:00 Free afternoon: Hiking tours; Sightseeing/shopping in Tegernsee/Rottach-Egern

18:30 Taxi departure to Enzian-Huette

19:00 - 23:00 Dinner at Enzian Huette
Thursday, December 11th

09:15 - 09:45  Miguel-Angel Aloy:  Anomalous boundary layers in relativistic jets
09:45 - 10:15  Andrea Mignone:  Deceleration of 3D relativistic magnetized jets in FRI sources
10:15 - 10:45  Coffee break
10:45 - 11:15  Rainer Moll:  Simulations of kink instabilities in expanding jets
11:15 - 11:45  Tony Bell:  New cosmic-ray hydrodynamics: shock breakout, collimated outflow and magnetic field evolution
11:45 - 12:15  Paul Dempsey:  Eigenfunction approaches to problems in relativistic DSA
12:30 - 14:00  Lunch break
14:00 - 14:30  Apostolos Mastichiadis:  The supercritical pile model for GRBs
14:30 - 15:00  Julian Pittard:  Particle acceleration and non-thermal emission from colliding wind binaries
15:00 - 15:30  Frank Rieger:  Non-blazar AGNs as very high-energy sources
15:30 - 16:00  Coffee break
16:00 - 18:00  Poster session & free discussion
18:30 - 20:00  Bavarian buffet @ Ringberg castle

Friday, December 12th

09:00 - 09:30  Dimitrios Giannios:  Magnetically dominated GRB flows: dynamics, prompt and afterglow emission
09:30 - 10:00  Lorenzo Sironi:  Particle acceleration in relativistic magnetized collisionless pair shocks: Dependence of shock acceleration on magnetic obliquity
10:00 - 10:30  Guy Pelletier:  Fermi acceleration at relativistic shocks with non-zero mean magnetic field
10:30 - 10:45  Coffee break
10:45 - 11:15  Brian Reville:  The diffusion properties of protons in supernova shock precursors with amplified turbulent magnetic fields
11:15 - 11:45  Oliver Porth:  MHD simulations of relativistic jet formation
11:45 - 12:15  Juri Poutanen:  Gamma-ray burst synchrotron self-Compton emission from stochastically accelerated electrons
12:30 - 14:00  Lunch break
14:00 - 14:30  Stefan Wagner:  A bright VHE Gamma-ray outburst in PKS 2155-304: What have we learnt?
14:30 - 15:30  Annalisa Celotti:  Open discussion: future steps /strategies; wishlist of for observers/theoreticians
15:30  End of workshop
15:30  Coffee & cakes