



# BREAKING THE LIMITS

## Super-Eddington accretion onto compact objects

Arbatax (OG), Italy, September 19-23, 2016

### Local Organizing Committee

Matteo Bachetti (**chair**), Marta Burgay, Tiziana Coiana, Elise Egron, Noemi Iacolina, Andrea Tarchi, Alessio Trois, Paolo Soletta

### Scientific Organizing Committee

Matteo Bachetti (**co-chair**; INAF/OAC, Italy), Paola Castangia (INAF/OAC, Italy), Tiziana di Salvo (U. Palermo, Italy), Chris Done (Durham U., UK), Fiona Harrison (Caltech, USA), Andrew King (U. Leicester, UK), Rodrigo Nemmen (U. Sao Paulo, Brazil), Ken Ohsuga (NAOJ, Japan), Alberto Pellizzoni (INAF/OAC, Italy), Katja Pottschmidt (NASA GSFC, USA), Chris Reynolds (U. Maryland, USA), Joe Silk (IAP, France), Alexander Tchekovskoy (U. California, Berkeley, USA), Francesco Tombesi (**chair**; NASA GSFC, USA), Marta Volonteri (IAP, France)

Event organization and logistics:



## Monday, September 19th 2016

	8:30-9:30	Registration
	9:30-9:45	Welcome
1. Accretion and ejection Physics	9:45-10:15	<b>Alexander Sadowski:</b> Simulating accretion flows - from the lowest to the highest accretion rates
	10:15-10:30	Matteo Bugli: Non-ideal GRMHD simulations of thick accretion disks around black holes: connecting small and large scales
	10:30-10:45	Bhupendra Mishra: Thermal instability (or not?) in three-dimensional, global, radiative GRMHD simulations of geometrically thin discs
	10:45-11:15	Coffee break
	11:15-11:30	Kohei Inayoshi: Hyper-Eddington accretion flows onto massive black holes
	11:30-11:45	Salvatore Cielo: Bursty AGN jets in compact galaxies, from 3D simulations
	11:45-11:12	Ileyk El Mellah: Numerical simulations of wind accretion onto compact objects : a multi-scale problem
	12:00-12:30	<b>Discussion</b>
	12:30-15:00	Lunch break
2. Black hole growth and galaxy evolution	15:00-15:30	<b>Andrew King:</b> Theory of black hole growth and galaxy evolution
	15:30-16:00	<b>Marcella Brusa:</b> Observations of black hole growth and galaxy evolution
	16:00-16:15	Felix Mirabel: Stellar Black Holes Formed in the Dark
	16:15-16:30	Hannalore Gerling-Dunsmore: Small Seed Black Hole Growth in Various Accretion Regimes
	16:30-17:00	Coffee break
	17:00-17:15	Yuya Sakurai: Hyper-Eddington accretion onto a black hole with super-Eddington luminosity
	17:15-17:30	Alessandro Lupi: Growing massive black holes via super-critical accretion of stellar mass seeds
	17:30-17:45	Stergios Amarantidis: The earliest accreting supermassive black holes : indications from models for future observations
	17:45-18:00	Laura Blecha: Uncovering the Signatures of Obscured AGN in Mergers
	18:00-18:15	Benny Trakhtenbrot: New Constraints on the Radiative Efficiencies of the Highest-Redshift Quasars
	18:15-18:45	<b>Discussion</b>



**Tuesday, September 20th 2016**

**3. Active Galactic Nuclei and Quasars**

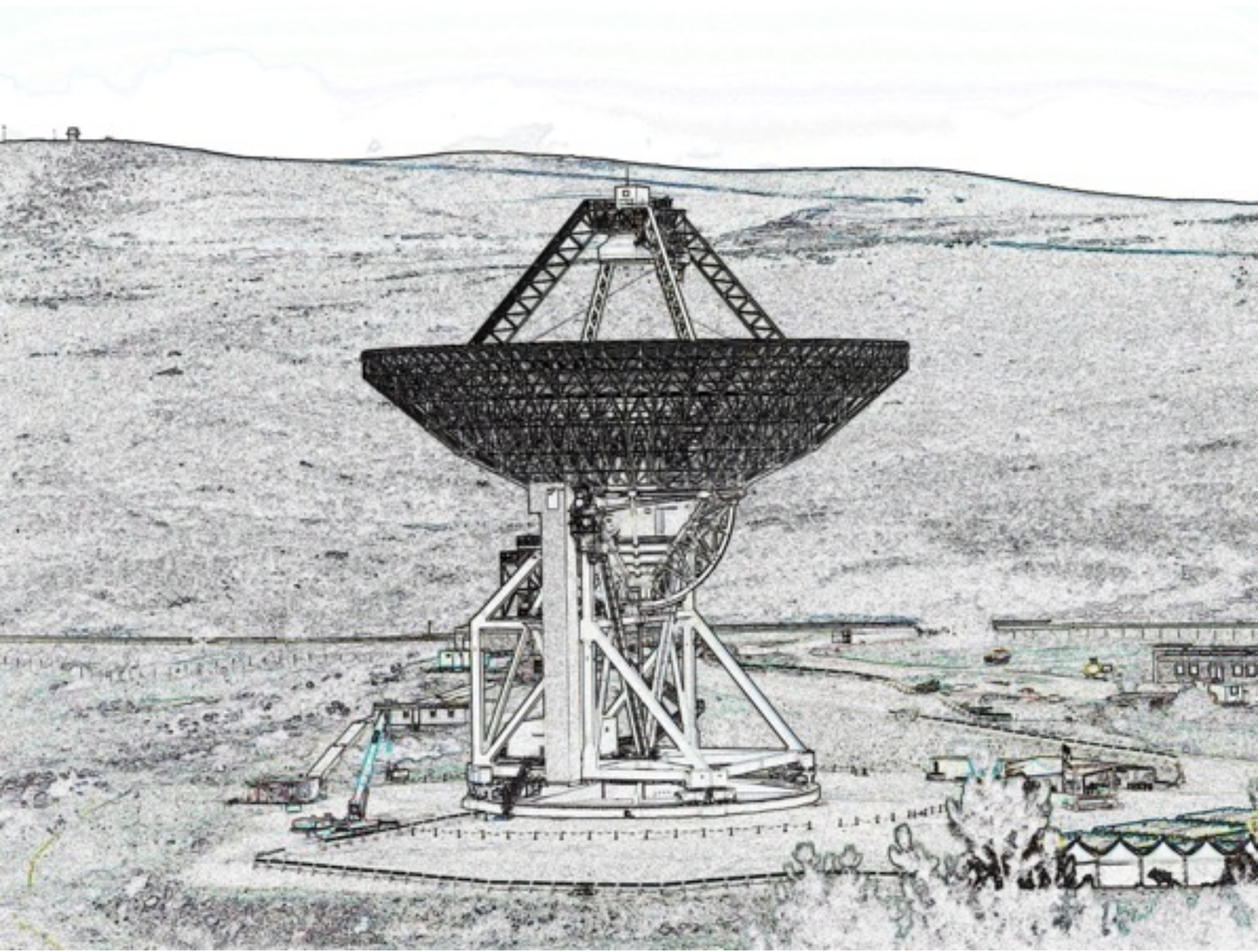
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|-------------|---|
| 09:30-10:00 | <b>Chris Reynolds</b> - Review  |
| 10:00-10:15 | Francesco Tombesi: Evidence for a super-Eddington wind in the ultraluminous infrared galaxy IRAS F11119+3257?   |
| 10:15-10:30 | James Reeves: Broad Soft X-ray Absorption Lines from the Quasar Wind in PDS 456.  |
| 10:30-10:45 | Valentina Braito: Revealing the nature of AGN winds; from the fast to the slow components   |
| 10:45-11:00 | Kouichi Hagino: Ultra-fast disk wind from a high accretion rate black hole 1H 0707-495  |
| 11:00-11:30 | Coffee break  |
| 11:30-11:45 | Francesca Panessa: AGN from low to high Eddington ratios: the X-ray and radio perspective   |
| 11:45-12:00 | Martin Ward: New evidence that some of the gamma-ray detected Narrow Line Seyfert 1s are Super Eddington Sources  |
| 12:00-12:15 | Manuela Bischetti: Revealing the heaviest, highly-accreting SMBHs at the heart of hyper-luminous quasars  |
| 12:15-12:30 | Mary Loli Martínez-Aldama: Exploring the spectral properties of highly accreting quasars at high redshift   |
| 12:30-15:00 | Lunch break   |
| 15:00-15:15 | Ken Ebisawa: Origin of spectral variations of Seyfert 1 galaxies  |
| 15:15-15:30 | Misaki Mizumoto: Characteristic X-ray spectral variations in the iron L-band of IRAS 13224-3089, 1H 0707-495 and NGC 4051   |
| 15:30-15:45 | Tracey Jane Turner: Measuring Light Echos in NGC 4051   |
| 15:45-16:00 | Emanuele Nardini: Discovery of transient iron fluorescence in the bare Seyfert Ark 120  |
| 16:00-16:15 | Yoshiyuki Inoue: Discovery of the millimeter excess in a nearby Seyfert nucleus: Toward unveiling the magnetic field in the vicinity of a supermassive black hole |
| 16:15-16:30 | Filippos Koliopanos: In search of the missing population of intermediate mass black holes   |
| 16:30-17:00 | Coffee break  |
| 17:00-17:30 | <b>Discussion</b> - Andrew King   |
| 18:45-23:30 | <b>SOCIAL DINNER</b>  |





**Wednesday, September 21st 2016**

5. ULX	9:30-10:00	<b>Mar Mezcua:</b> Multiwavelength observations of ULXs
	10:00-10:15	Matteo Bachetti: M82 X-2: an ultraluminous pulsar
	10:15-10:30	Marianne Heida: NIR spectroscopy of ULXs
	10:30-10:45	Kristhell López: Near Infrared Counterparts of ULXs
	10:45-11:00	Hannah Earnshaw: Soft ULXs at the Eddington Threshold
	11:00-11:30	Coffee break
7. New missions	11:30-12:00	<b>Didier Barret:</b> Athena
	12:00-12:30	<b>Nicolo' D'Amico:</b> SRT and INAF missions
	12:30-13:00	<b>Discussion</b>
	13:00-14:00	Lunch break
	14:00-20:00	<b>SOCIAL TRIP to the Sardinia Radio Telescope</b>



**Thursday, September 22nd 2016**

4. Galactic Super-Eddington sources	9:30-10:00	<b>Rob Fender:</b> Review talk
	10:00-10:15	Katja Pottschmidt: Broad band continuum spectra of accreting pulsars around / above the critical luminosity
	10:15-10:30	Rebecca Nealon: QPOs from misaligned accretion discs
	10:30-11:00	Coffee break
	11:00-11:15	Valery Suleimanov: Super-Eddington accretion luminosity of highly magnetized neutron stars
	11:15-11:30	Jamie Court: Exotic Variability in IGR J17091-3624; A Comparison with GRS 1915+105
	11:30-12:00	<b>Discussion</b> - Felix Mirabel
	12:00-15:00	Lunch break
5. (cont.) Ultraluminous X-ray sources	15:00-15:30	<b>Ken Ohsuga:</b> Theory of ULXs
	15:30-16:00	<b>Matthew Middleton:</b> Observations of ULXs
	16:00-16:15	Tim Roberts: At the extremes of super-Eddington accretion
	16:15-16:30	Andrew Sutton: Crossing the Eddington limit: investigating accretion disc spectra in ultraluminous X-ray sources and sub-Eddington binaries
	16:30-17:00	Coffee break
	17:00-17:15	Ciro Pinto: Discovery of powerful winds in ultraluminous X-ray sources
	17:15-17:30	Michal Bursa: Effects of geometry and mass accretion rate on thermal spectra of ULX sources
	17:30-17:45	Shogo Kobayashi: Comparing ULXs with the other High-Eddington Sources
	17:45-18:00	Takumi Ogawa: A unified model for ULXs and ULSS; radiation hydrodynamics simulations of super-Eddington accretion flows
	18:00-18:30	<b>Discussion</b>



Friday, September 23rd 2016

6. GRBs and TDEs	9:30-10:00	<b>Stefanie Komossa:</b> Jetted and non-jetted tidal disruption events
	10:00-10:30	<b>Andrei Beloborodov:</b> Review of GRBs
	10:30-11:00	Coffee break
	11:00-11:15	Lixin Jane Dai: Tidal disruption events as a probe of super-Eddington accretion
	11:15-11:30	Erin Kara: Relativistic reverberation in a tidal disruption event
	11:30-11:45	Ayako Ishii: Coupled Computation of Radiative Transfer with Relativistic Hydrodynamics Relevant to GRB Emission Process
	11:45-12:15	<b>Discussion</b> - Luigi Piro
	12:15-12:30	<b>Conclusions</b>

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