



# 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**

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

**Tuesday, September 20th 2016**

**3. Active Galactic Nuclei and Quasars**

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

Chair: Francesco Tombesi

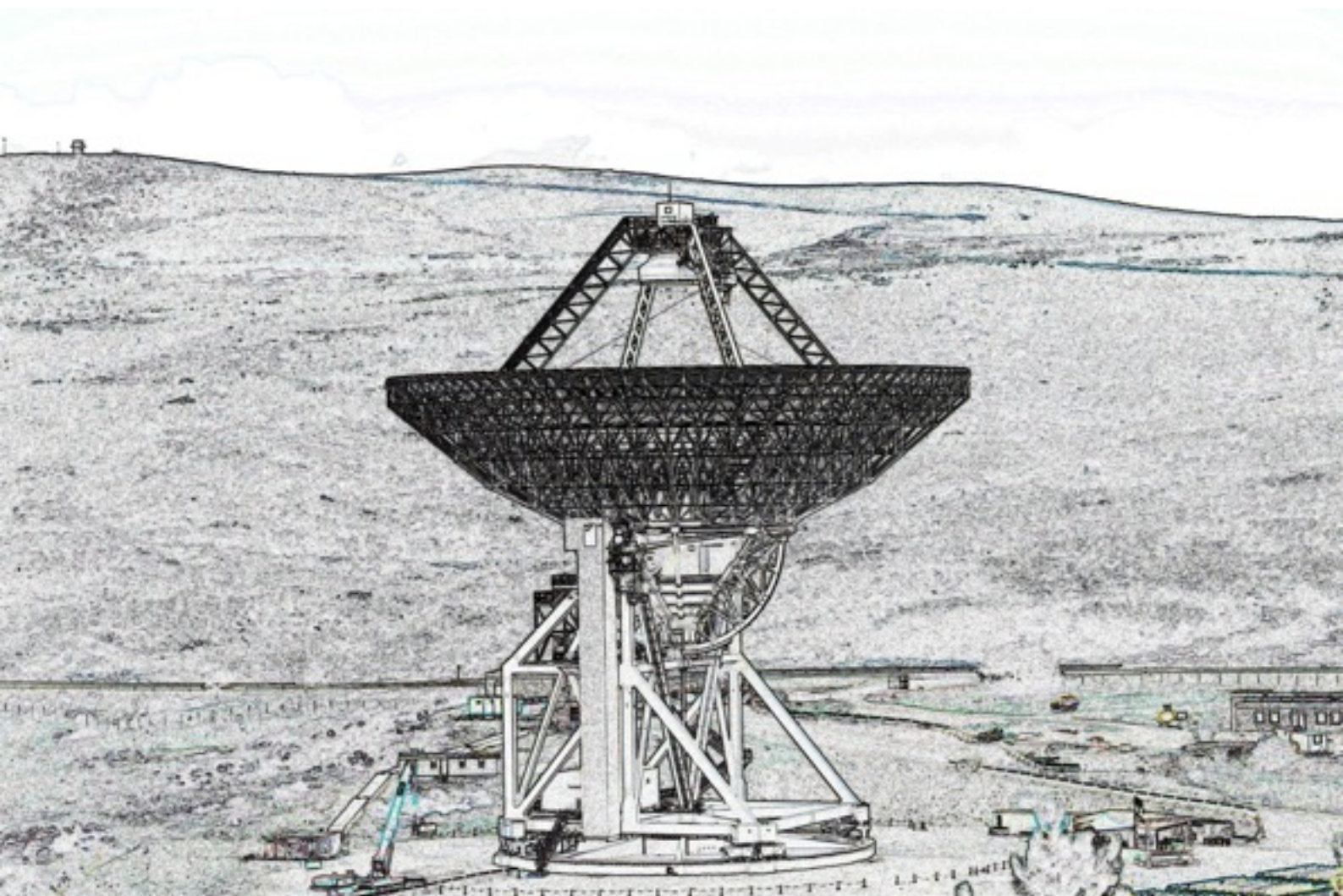
- 9:15-09:45 **Mar Mezcua:** *Multiwavelength observations of ULXs*
- 09:45-10:00 Matteo Bachetti: *M82 X-2: an ultraluminous pulsar*
- 10:00-10:15 Gianluca Israel: *Mining the beat of ULXs*
- 10:15-10:30 Marianne Heida: *NIR spectroscopy of ULXs*
- 10:30-10:45 Kristhell López: *Near Infrared Counterparts of ULXs*
- 10:45-11:00 Hannah Earnshaw: *Soft ULXs at the Eddington Threshold*
- 11:00-11:30 Coffee break

7. New missions

Chair: Matteo Bachetti

- 11:30-12:00 **Didier Barret:** *Athena*
- 12:00-12:30 **Nicolò D'Amico:** *INAF missions and future prospects*
- 12:30-13:00 **Discussion** - Chris Reynolds
- 13:00-14:00 Lunch break

14:00-20:00 **SOCIAL TRIP to the Sardinia Radio Telescope**



Thursday, September 22nd 2016

4. Galactic Super-Eddington sources

	Chair: Marta Burgay
9:30-10:00	<b>Rob Fender:</b> <i>Review talk</i>
10:00-10:15	Katja Pottschmidt: <i>Broad band continuum spectra of accreting pulsars around / above the critical luminosity</i>
10:15-10:30	Rebecca Nealon: <i>QPOs from misaligned accretion discs</i>
10:30-11:00	Coffee break
11:00-11:15	Valery Suleimanov: <i>Super-Eddington accretion luminosity of highly magnetized neutron stars</i>
11:15-11:30	Jamie Court: <i>Exotic Variability in IGR J17091-3624; A Comparison with GRS 1915+105</i>
11:30-12:00	<b>Discussion</b> - Felix Mirabel
12:00-15:00	Lunch break

5. (cont.) Ultraluminous X-ray sources

	Chair: Katja Pottschmidt
15:00-15:30	<b>Ken Ohsuga:</b> <i>Theory of ULXs</i>
15:30-16:00	<b>Matthew Middleton:</b> <i>Observations of ULXs</i>
16:00-16:15	Tim Roberts: <i>At the extremes of super-Eddington accretion</i>
16:15-16:30	Andrew Sutton: <i>Crossing the Eddington limit: investigating accretion disc spectra in ultraluminous X-ray sources and sub-Eddington binaries</i>
16:30-17:00	Coffee break
17:00-17:15	Ciro Pinto: <i>Discovery of powerful winds in ultraluminous X-ray sources</i>
17:15-17:30	Michal Bursa: <i>Effects of geometry and mass accretion rate on thermal spectra of ULX sources</i>
17:30-17:45	Shogo Kobayashi: <i>Comparing ULXs with the other High-Eddington Sources</i>
17:45-18:00	Takumi Ogawa: <i>A unified model for ULXs and ULSSs; radiation hydrodynamics simulations of super-Eddington accretion flows</i>
18:00-18:30	<b>Discussion</b> - Tim Roberts



Friday, September 23rd 2016

6. GRBs and TDEs

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

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