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**MASS Winter School 2023/2024**

15<sup>th</sup> - 19<sup>th</sup> January 2024

Location: University of Rome "Tor Vergata"

*From Stars to Cosmic Explosions:  
Bridging Scales in Astrophysical Data  
Analysis*

<i>January 15<sup>th</sup>, 2024 - Morning</i>	<i>January 15<sup>th</sup>, 2024 - Afternoon</i>
<i>Introduction and hands-on activity on aperture photometry</i>	<i>Introduction and hands-on activity on X-ray observations</i>
09:00 - 09:15, Aula 17: Welcome - UTOV, MASS Consortium Deputy Coordinator, Prof. Dario Del Moro	12:30 - 14:00 Lunch
09:15 - 12:30, Aula 17: "Aperture Photometry and Transit Light Curve Analysis" - Prof. L. Mancini	14:00 - 17:00, Aula 17: "X-ray observations of the hot and energetic Universe." - Prof. Hervé Bourdin

<p><i>January 16<sup>th</sup>, 2024 - Morning</i></p> <p><i>Theoretical lecture and hands-on activity on time signal analysis</i></p> <p>09:00 – 11:00, Aula T1: “Grand destinies and progressive hopes” of stellar spectroscopy – Prof. Giuseppe Bono</p> <p>11:00 – 11:30 Coffee break</p> <p>11:30 - 12:30 , Aula 17: “Gaia and its derivative products” - Dr. Michele Fabrizio</p>	<p><i>January 16<sup>th</sup>, 2024 - Afternoon</i></p> <p><i>Hands-on activity on stellar spectroscopy</i></p> <p>12:30 – 14:00 Lunch</p> <p>14:00 – 17:00, Aula 17: “ Navigating the Stellar Spectrum: Deciphering Stellar Composition and Evolution with Qoyllur-Quipu (Q2)”- Dr.Valentina d’Orazi</p>
<p><i>January 17<sup>th</sup>, 2024 - Morning</i></p> <p><i>Student presentations – Aula T1</i></p> <p>09:00 – 09:15 Deandra Aurellio - "Search for Supermassive Binary Black Hole Candidates from SDSS DR16 Spectra"</p> <p>09:15 – 09:30 Faniyi Josiah Olumuyiwa - "AGN dust Radiative transfer modelling"</p> <p>09:30 – 09:45 Raju Aman Nadimpalli – “Unsupervised Clustering of Quasar Light Curves through Self Organizing Maps”</p> <p>09:45 – 10:00 Guerra Varas Nicolas - “Exploring Broad Absorption Line Quasars: A Machine Learning Approach for Identification and Analysis”</p> <p>10:00 – 10:15 Hari Gauri Shankar – “Unveiling Cosmic Web: from Filaments to Cosmology”</p> <p>10:15 – 10:30 Mohideen Malik Ridha Fathima - "Estimation of Spectral Lag in Gamma-Ray Bursts"</p> <p>10:30 – 10:45 Mustafa Aliza – “Cleaning CMB for precision Cosmology”</p> <p>10:45 – 11:00 Paul Sagarika - “Investigating the Origin and Evolution of the Most Powerful Quasars in the Universe”</p> <p>11:00 – 11:30 Coffee break</p> <p><i>Theoretical lecture</i></p> <p>11:30-12:30, Aula T1: "The Legacy of Angelo Secchi: Studies on Sun-Earth Connections" – Prof. F. Berrilli</p>	<p><i>January 17<sup>th</sup>, 2024 - Afternoon</i></p> <p><i>Hands-on activity on time series analysis</i></p> <p>12:30 – 14:00 Lunch</p> <p>14:30 – 17:00, Aula 17: Time series analysis of variable stars – Dr. V. Braga</p>
<p><i>January 18<sup>th</sup>, 2024 - Morning</i></p> <p><i>Hands-on activity on CMB data analysis</i></p> <p>09:00 – 13:00, Aula 17: “Observing the afterglow of the Big Bang” – Prof. Marina Migliaccio and Dr. Alessandro Carones.</p>	<p><i>January 18<sup>th</sup>, 2024 - Afternoon</i></p> <p>13:00 – 14:30 Lunch</p> <p>14:30 Visit to the Monte Porzio Catone Astronomical Observatory</p>

<i>January 19<sup>th</sup>, 2024 - Morning</i>	<i>January 19<sup>th</sup>, 2024 - Afternoon</i>
<p>Student presentations – Aula T1</p>	<p>13:00 – 14:30 Lunch</p>
<p>09:00 – 09:15 Rajkumar Brandon - <i>"The Sun as a Star and Exoplanet Detection"</i></p>	<p><i>Invited talk</i></p>
<p>09:15 – 09:30 Ganguly Sreeparna - <i>"Investigating acceleration mechanisms of BH winds"</i></p>	<p>15:30-16:30, Aula Grassano: Dr. Yana Khusanova (Max Planck Institute for Astronomy, Heidelberg) - <i>"Quasar host galaxies in the epoch of reionization"</i></p>
<p>09:30 – 09:45 Rivera Marco Immanuel - <i>"Statistical inference of Quasar variability using dynesty"</i></p>	
<p>09:45 – 10:00 Vega Pallauta Macarena Costanza - <i>"High-Contrast Imaging observations with SHARK-NIR"</i></p>	
<p>10:00 – 10:15 Akpuogwu Ifeoma Mavis - <i>"The propagation delay in the timing of a pulsar orbiting a supermassive black hole"</i></p>	
<p><i>Invited AstroMundus Alumni presentations</i></p>	
<p>10:15-10:45, Aula T1: Andrea Guzmán Mesa (AstroMundus Alumna, Research and Innovation Advisor at Euresearch, Switzerland)</p>	
<p>10:45-11:15, Aula T1: Yana Khusanova (AstroMundus Alumna, Postdoc, Max Planck Institute for Astronomy, Heidelberg)</p>	
<p>11:15- 11:30 Coffee break</p>	
<p>11:30-13:00 Aula T1: Open discussion with students</p>	