

MEMORIE DELLA SOCIETÀ ASTRONOMICA ITALIANA

Vol.90 n.-1-2 2019

**INTEGRAL conference and AHEAD gamma-ray workshop  
INTEGRAL looks AHEAD to multi-messenger astronomy**

*Geneva, February 11-15, 2019*

*editors:* C. Ferrigno, E. Bozzo and P. von Ballmoos

**TABLE OF CONTENTS**

|   |    |
|---|----|
| <i>Index</i>  | 5  |
| <i>Foreword</i>   | 9  |
| <i>List of Participants</i>   | 12 |
| V. Savchenko<br><i>Hunting for elusive multi-messenger transients with INTEGRAL</i>                                   | 19 |
| T. Godard et al.<br><i>The past, present &amp; future of INTEGRAL operations</i>                                      | 26 |
| C. Fryer et al.<br><i>Gamma-ray probes of supernova engines</i>   | 32 |
| P. Jetzer<br><i>LISA science and multi-messenger astronomy</i>  | 38 |
| S. Karino<br><i>Evolution of wind-fed high mass X-ray binaries</i>  | 42 |
| M. Tarnopolski<br><i>Analysis of the duration-hardness ratio plane of gamma-ray bursts using skewed distributions</i> | 45 |
| H. Ashkar et al.<br><i>Searches for TeV gamma-ray counterparts to Gravitational Wave events with H.E.S.S.</i>         | 49 |
| A. Ursi et al.<br><i>Detection of short GRBs and sub-threshold events with the AGILE MCAL</i>                         | 53 |
| P. Meszaros<br><i>Gamma-Ray Bursts: theoretical issues and developments</i>   | 57 |

|   |     |
|---|-----|
| D. Frederiks et al.<br><i>GRB observations with Konus-WIND experiment</i>   | 67  |
| S. Buson<br><i>Linking electromagnetic observations to neutrino astrophysics</i>                                  | 71  |
| S. Britzen et al.<br><i>Neutrinos from TXS 0506+056</i>   | 77  |
| A. Vuorinen et al.<br><i>Constraining the equation of state of neutron star matter with observations</i>          | 81  |
| M. Guainazzi<br><i>Chasing X-ray counterparts of gravitational wave events with Athena</i>                        | 87  |
| J. Gelfand et al.<br><i>MeV emission from pulsar wind nebulae</i>   | 92  |
| R. Iaria et al.<br><i>Broadband spectral analysis of MXB 1659-298 in its soft and hard state</i>                  | 96  |
| A. Filothodoros et al.<br><i>A long term hard X-ray analysis of GRS 1758-258 using INTEGRAL data.</i>             | 100 |
| J. K Thomas et al.<br><i>MAXI J 1820+070: A new black hole low-mass X-ray binary candidate.</i>                   | 103 |
| A. Costantino et al.<br><i>Constructing an IBIS/ISGRI slew survey</i>   | 107 |
| J. Ness et al.<br><i>Towards a better coordination of multimessenger observations: VO and future developments</i> | 110 |
| L. Amati et al.<br><i>The Transient High-Energy Sky and Early Universe Surveyor (THESEUS)</i>                     | 118 |
| M. Falanga et al.<br><i>Magnetic Cataclysmic Variables discovered in hard X-rays</i>                              | 126 |
| G. Mantovani<br><i>HEMERA: new science opportunities using tropospheric and stratospheric balloons</i>            | 132 |
| V. Tatischeff et al.<br><i>All-Sky-ASTROGAM - The MeV gamma-ray companion to multimessenger astronomy</i>         | 137 |
| H. Chang et al.<br><i>Concept study of a small Compton polarimeter to fly on a cubesat</i>                        | 144 |
| D. Bernard<br><i>Performance of the MeV gamma-ray telescopes and polarimeters of the future.</i>                  | 149 |

|   |     |
|---|-----|
| G. Ghisellini<br><i>Extra-galactic jets: a hard X-ray view</i>  | 154 |
| E. Prandini<br><i>MAGIC extragalactic highlights from a MeV perspective</i>                               | 164 |
| F. Ursini et al.<br><i>High-energy view of hard X-ray selected radio galaxies</i>                         | 170 |
| J. Tomsick<br><i>Hard X-ray observations of Galactic sources: the HMXB population and black hole spin</i> | 174 |
| V. Grinberg<br><i>An observational view on X-ray binary black holes</i>                                   | 180 |
| I. El Mellah et al.<br><i>Enhanced accretion and wind-captured discs in high mass X-ray binaries</i>      | 185 |
| F. Cangemi et al.<br><i>Long term spectral study of Cygnus X-1 using INTEGRAL</i>                         | 191 |
| P. Lubinski et al.<br><i>Characteristic geometries of accretion in Cyg X-1 found with INTEGRAL</i>        | 196 |
| A. Szelecka et al.<br><i>Spectral states of NGC 4151 observed with INTEGRAL</i>                           | 200 |
| A. Borghese<br><i>Magnetars: neutron stars at the extreme</i>   | 204 |
| A. Papitto<br><i>Accretion and rotation-powered pulsars: two distinct classes?</i>                        | 210 |
| G. Israel et al.<br><i>The extragalactic population of neutron stars: the ULX paradigm revolution</i>     | 216 |
| P. Kretschmar et al.<br><i>Vela X-1 as a laboratory for accretion in High-Mass X-ray Binaries</i>         | 221 |
| P. Cumani et al.<br><i>Background model for a gamma-ray satellite on a low-Earth orbit</i>                | 226 |
| P. Bloser et al.<br><i>The Advanced Scintillator Compton Telescope (ASCOT)</i>                            | 232 |
| A. Morselli et al.<br><i>Instruments optimizations for low energy Gamma-ray detection</i>                 | 237 |
| B. Cordier et al.<br><i>The SVOM mission</i>  | 242 |

|  |     |
|--|-----|
| F. Frontera et al.<br><i>ASTENA, a new mission concept for an Advanced Surveyor of Transient Events and Nuclear Astrophysics</i> | 247 |
| E. Virgili et al.<br><i>The Narrow Field Telescope on board the ASTENA mission</i>   | 252 |
| N. Lund<br><i>New features in JEM-X OSA-11 software</i>  | 256 |
| P. Laurent et al.<br><i>XGRE: a TGF/GRB detector on the TARANIS space mission</i>  | 259 |
| A. Gros et al.<br><i>Analysis of the IBIS/ISGRI systematic source location offsets</i>   | 263 |
| S. Schanne et al.<br><i>The SVOM/ECLAIRs gamma-ray burst trigger</i>   | 267 |
| T. Siegert<br><i>INTEGRAL contributions to gamma-ray line studies</i>  | 270 |
| F. Panther<br><i>Gamma-ray lines in modern astrophysics</i>  | 276 |
| A. Malizia et al.<br><i>INTEGRAL view of the extragalactic sky</i>   | 282 |
| R. Krivonos<br><i>Recent results from the INTEGRAL hard X-ray surveys</i>  | 286 |
| T. Bird<br><i>Transients in the INTEGRAL/IBIS surveys</i>  | 292 |
| A. Strong and W. Collmar<br><i>COMPTEL Reloaded: a heritage project in MeV astronomy</i>   | 297 |