Astronomical and Astrophysical Transactions (*AApTr*), 2016, Vol. 29, Issue 2, pp. 91–92,
ISSN 1055-6796, Photocopying permitted by license only, ©Cambridge Scientific Publishers

Preface

This special issue of Astronomical and Astrophysical Transactions comprises some of the papers presented at the *Ioffe Workshop on Gamma-Ray Bursts and Other Transient Sources: Twenty Years of the Konus–Wind Experiment* – which was held at the Ioffe Physico-Technical Institute, St. Petersburg, Russia in September 2014. The issue is dedicated to the memory of Professor Evgenii Pavlovich Mazets (1929–2013) in recognition of his outstanding and significant contribution, as Principal Investigator, of the Russian–American Konus–Wind experiment. The Konus instrument is a gamma-ray burst monitor and it was designed and manufactured at the Ioffe Physico-Technical Institute and was first used in the Venera 11–14 deep space missions in 1978–1983. The next important stage and application of the equipment was in association with the Konus–Wind experiment and the Konus instrument was mounted on board the American spacecraft Wind which was launched in November 1994. Wind's orbit in interplanetary space has proved very effective for the study of gamma-ray bursts and soft gamma repeaters and also solar flares and other transients. The Konus instrument consists of two high sensitivity gamma ray detectors which are positioned and located on the top and bottom of the spacecraft, aligned with the spin axis; the Konus equipment has enabled more than 20 years of constant and uninterrupted surveillance and has produced a very large database pertaining to GRBs. In fact, the Konus–Wind experiment continues to play a significant role in the study of GRBs and is an important source of information and data, as part of the InterPlanetary Network (IPN), together and in synchrony with other active missions/spacecraft (equipped with GRB detectors) including FERMI, SWIFT, AGILE, INTEGRAL.

This issue includes papers detailing the following areas of research into gamma-ray bursts and other transient sources: also there is a summary and overview of the life and research work of Professor E.P. Mazets:

In memory of Evgenii Pavlovich Mazets*
R.L. Aptekar, G.S. Bisnovatyi-Kogan, A.A. Boyarchuk, A.M. Bykov, D.A. Varshalovich, A.G. Zabrodsky, L.M. Zelenyi, A.A. Kaplyansky, K.A. Konoplev, R.A. Suris, R.A. Sunyaev, D.G. Yakovlev

- **GRBs and their supernovae**
  Supernovae and gamma-ray bursts connection
  M. Della Valle

*DOI: 10.3367/UFNe.0183.201311g.1255
Citation: R.L. Aptekar, G.S. Bisnovatyi-Kogan, A.A. Boyarchuk, A.M. Bykov, D.A. Varshalovich, A.G. Zabrodsky, L.M. Zelenyi, A.A. Kaplyansky, K.A. Konoplev, R.A. Suris, R.A. Sunyaev, D.G. Yakovlev, "In memory of Evgenii Pavlovich Mazets", PHYS-USP, 2013, 56 (11), 1150–1152
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Gamma-ray bursts appear simpler than expected?
P. Chardonnet, A.A. Filina, M.V. Popov, V.M. Chechetkin, A.A. Baranov
Light produced by shocks and shocks produced by light: superluminous supernovae and GRB afterglows
S.I. Blinnikov

- **Prompt emission processes**
  MASTER and unsolved GRB observational and theoretical problems
  V.M. Lipunov

- **Soft gamma repeaters and anomalous X-ray pulsars: observations and theory**
  Soft gamma repeaters/anomalous X-ray pulsars: are they magnetars?
  G.S. Bisnovatyi-Kogan
  Origins of magnetars in binary systems
  S.B. Popov

- **GRBs as cosmological probes**
  GRB cosmology through the $E_{\rm p,i}$–intensity correlation
  L. Amati, D.S. Sawant, M. Della Valle

- **GRB afterglows**
  Polarization of prompt and afterglow emission of Gamma-Ray Bursts
  S. Covino, D. Götz