

Foreword

Star formation is one of the most important areas of research in astrophysics. Observationally, our method of investigating the star formation process has changed in the last 4–5 years. Recent advances in infrared and (sub) millimeter detector technology have resulted in new wide-field cameras that allow mapping of large areas of the sky in reasonable observation times. With the advancement in technology, new challenging observations will be able to answer some of the unresolved issues regarding modes of star and planet formation. The current and new facilities such as WFCAM on UKIRT, UKIDSS, ESO-VISTA (infrared), SCUBA2, HARP, 4MASS (radio) on the ground and the space missions such as AKARI, Spitzer Space Telescope, Herschel and Planck will provide a great depth and coverage in multiple wavelengths. On the other hand, the upcoming facilities such as ALMA in the millimeter wavelengths and the JWST in the infrared will provide angular resolution at milli-arcsecond levels to probe distant objects at AU scales. SPICA in the mid-/far-infrared, to be launched in 2017, will fill the gap in the coverage of wavelength between JWST and Herschel. With these upcoming facilities, it will be possible to observe a significant area of star forming regions in a short time scale. Consequently, this will provide a chance to address the central issues in star formation studies. The all sky samples covering a large fraction of the sky will provide an opportunity to carry out unbiased statistical studies of young stellar properties, the distribution of sub-stellar objects, the structure of molecular clouds, initial mass function and mechanism of massive star formation.

As a part of the Dr. Homi Bhabha birth centenary celebrations, an international workshop on “Interstellar Matter and Star Formation - A Multi-Wavelength Perspective” was held at the TIFR National Balloon Facility, Hyderabad, during October 5–7, 2009 to review the progress in the field of star formation. The purpose of the workshop was also to expose and motivate students and young researchers towards this field and to promote the topic of Star Formation at the graduate studies level so that the upcoming young generation in India can efficiently use the next generation space and ground-based telescope facilities such as Herschel, JWST, ALMA, VISTA and SCUBA/JCMT. The workshop also focussed on results from the currently operational state-of-art ground-based near- and mid-infrared, sub-mm and millimeter observatories. The year 2009 also marked completion of 25 years of the TIFR 100 cm balloon borne far-infrared telescope and the workshop also commemorated this occasion.

The meeting was organized around invited reviews and contributed talks, with substantial time devoted to topical discussions. Poster sessions were scheduled around the lunch/tea breaks. These proceedings represent most, but not all of the presentations made at the workshop. My sincere thanks to all the authors who contributed and all the referees who reviewed the contributions.

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