

COMMISSION 29

STELLAR SPECTRA

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1. Introduction

The members of IAU Commission 29 *Stellar Spectra* are actively engaged in the quantitative analysis of spectra of various types of stars. With large and medium size telescopes equipped with high resolution spectrographs LTE and Non-LTE analysis of spectra of all types stars are being carried out. Spectra of stars in our Galaxy, in globular and open clusters, stars in LMC and SMC and in nearby galaxies are being studied. Accurate chemical composition analysis of various types of stars has been carried out during the past three years. Now the analysis of stellar spectra covers the wavelength range from X-ray region to IR and sub-millimeter range. Recently stellar spectra are being analysed using time-dependent, 3D, hydrodynamical model atmospheres to derive accurate stellar abundances.

2. Activities

Spectra of massive OB stars, Wolf-Rayet stars, RGB, AGB and Horizontal Branch stars, main-sequence stars, pre-main-sequence stars, all types of variable stars, and white dwarfs were analysed. Detailed chemical composition analysis of heavy elements abundances in large number of very metal-poor stars have been carried out to understand the neutron-capture elements in the early chemical history of the Galaxy and early Universe. Detailed analysis of the chemical composition of the unevolved very metal-poor ($[\text{Fe}/\text{H}] < -5.0$) star HE1327–2326 has been made.

The number of papers on stellar spectra published during the past three years is very large and space and time does not permit me to summarize even the important results. Quantitative and detailed analysis of high resolution spectra of large number of stars with improved model atmospheres and atomic-data and LTE and Non-LTE methods is providing valuable clues to understand stellar evolution, galactic-chemical evolution, nucleosynthesis, stellar pulsations, mixing, mass-loss, circumstellar matter, etc. Spectra of stars with planets are also being studied in detail. Spectra of large number of

chemically peculiar stars have been analysed during the past three years. Abundances of light elements, *s*-process elements and heavy elements are being derived from the analysis of spectra of large numbers of stars and they are shedding new light on early universe, *s*-process and *r*-process nucleosynthesis.

3. Meetings

During the past three years IAU Commission 29 endorsed, extended support and sponsorship to several IAU Symposia and meetings and also for several IAU Symposia, JDs and meetings that will be held during the IAU XXVII General Assembly in Rio de Janeiro, Brazil, August 2009.

Mudumba Parthasarathy
president of the Commission