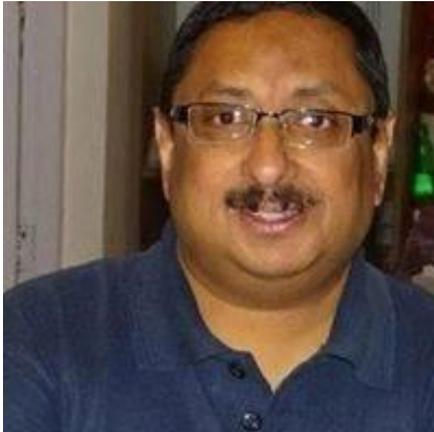b

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# Use of Automated methods in Stellar Astronomy
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Prof. Ranjan Gupta got his B.Sc.in 1977 and M.Sc. in 1979 at Rajasthan University Jaipur, and he got his Ph.D. in Physics in 1987 at Physical Research Laboratory Ahmedabad. He works at IUCAA since 1990 and now his a Senior Professor and Consultant, at IUCAA. His research interests in Astronomical Instrumentation , Interstellar dust and its modeling, Artificial Neural Networks and its application to stellar spectra .In past 30 years of his academic career, he had opportunity to be part of several international collaborations and under these had spent various durations at USA; UK; Germany; Canada; France; Spain, Italy; Russia; Japan; Australia and South Africa. At most of these countries he also had attended International Conferences in the field of his research.

Abstract

Artificial Neural Networks (ANN) have been known as a powerful tool for pattern recognition in various applications over past several years since the multi-layer-back-propagation algorithm (MBPN) was developed. In the recent years, ANN have been successfully used in classification type applications in Astronomy.

The talk would highlight ANN as a tool for pattern recognition in general and Astronomical applications in particular. It would also review the stellar spectral classification trends and new applications carried out by our group recently viz. extracting stellar atmospheric parameters from observed stellar spectra, determination of color excess from IUE-UV spectra and use of PCA as a pre-processor for ANN applications.

Its application to a fairly large sample of 2000 spectra of IRAS and subsequent classification results will be shown. Recent applications of ANNs by our group are on the large 1273 spectra of CFLIB INDO-US spectral library and estimation of interstellar extinction from UV simulated satellite data etc. and star-galaxy classification for upcoming satellite missions ASTROSAT/GAIA etc. It has been most recently applied to a very large spectral data base of LAMOST.
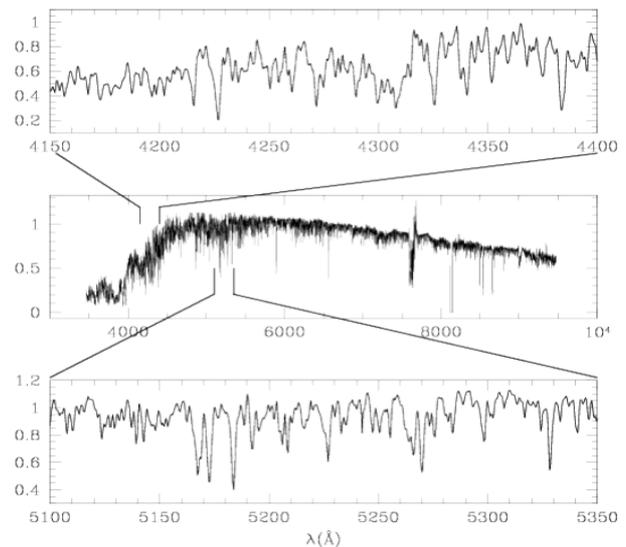
All are welcome ! Tea and coffee will be served at 2:15 PM.