Bayesian spectroscopy, stellar parameters and the Galactic Disc Ralph Schönrich

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With the advent of Galactic Surveys we need to develop new methods to exploit the full wealth of spectroscopic, photometric and astrometric data. I will present and discuss a new method of probabilistic stellar parameter determination. It offers an optimal scheme to fully exploit all available data to obtain stellar metallicities, temperatures, gravities, distances, ages, etc. within a unified framework. The approach can be equally used for all existing surveys, offering an ideal position to cross-calibration of different data. While it is impacted by systematic errors in our current theoretical knowledge (like existing approaches), it offers a good position to detect and correct for those. First application to existing high- and low-resolution spectra will be presented.

The detailed knowledge of parameter errors will be essential to compare future chemodynamic models to the Milky Way. If time allows, I will discuss our current understanding of disc formation and physics and point to future improvements.