Contribution ID: **3** Type: **invited talk**

Rediscovering the Milky Way formation history with Gaia white dwarfs

Thursday, 21 September 2017 12:30 (30 minutes)

The vast majority of stars will become white dwarfs at the end of the stellar life cycle. These remnants are precise cosmic clocks owing to their well constrained cooling rates. Gaia Data Release 2 will detect up to 300,000 new white dwarfs, which will then be observed spectroscopically with WEAVE and 4MOST. By employing spectroscopically derived atmospheric parameters combined with Gaia parallaxes and the initial-to-final mass relation, white dwarfs can constrain the local stellar formation history in a rather direct way. In particular, by using only remnants more massive than about 0.7 solar mass, which come from progenitors with negligible main sequence lifetimes, we will obtain an exquisitely precise formation history for the last 12 Gyr. Alternatively, we will acquire very direct constraints on the ages of first disk/halo stars by looking at the coolest Gaia white dwarfs. One challenge will be to connect these results (within 50-500 pc) with larger scale Galactic evolution.

Primary author: TREMBLAY, Pier-Emmanuel (University of Warwick)

Co-authors: GAENSICKE, Boris (University of Warwick); GENTILE FUSILLO, Nicola (University of Warwick)

Presenter: TREMBLAY, Pier-Emmanuel (University of Warwick)

Session Classification: Evolved stars and the connection to Galactic archaeology