

## **SYMPAB - (16146) - EXTRAPOLATING THREE-DIMENSIONALITY AND ITS IMPORTANCE FOR TEACHING AND LEARNING PHYSICS AND ASTRONOMY**

Urban Eriksson (Sweden)<sup>1</sup>

1 - NRCF, Lund University

### **Short Abstract**

*Learning astronomy at higher level can be both exciting and challenging. Entering the discipline of astronomy involves learning the way that astronomers communicate knowledge, using a multitude of disciplinary specific semiotic resources to understand the multidimensional universe. A new-to-the-discipline student will need to learn to "read" and "write" all these resources in their endeavour to learn astronomy and eventually become part of the discipline. In this paper we present the results from two international studies on pupils', students' and professional astronomers' competency to extrapolate three-dimensionality from 2D and pseudo-3D semiotic resources. The results from these studies highlight the severe difficulties that are associated with extrapolating three-dimensionality for most of the participants. Detailed results will be presented and discussed together with implications for teaching astronomy.*