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**Seminar of the Department of Mathematics and Statistics, University of Cyprus**

Room: 037, ΣΘΕΕ01. Date: 04/04/2017 Time: 15:00

**Speaker :** Ramón Vera (Pennsylvania State University)

**Title :** Poisson Structures in near-symplectic Manifolds

**Abstract:**

 In this talk we will show a connection between two geometric structures : near-symplectic manifolds and singular Poisson structures. Near-symplectic forms were originally introduced by Taubes and later explored by Auroux-Donaldson-Katzarkov as a way of generalizing symplectic topology in dimension 4. These singular symplectic structures are closely related to broken Lefschetz fibrations, which are known to exist on any 4-manifold and have found applications in low-dimensional topology. After introducing these 2-forms on any dimension we will discuss its link to Poisson geometry and singularity theory.  Every near-symplectic manifold induces two almost regular Poisson structures, which are characterized by a finite Poisson cohomology.  This is joint work with P. Batakidis.