

*Department of Mathematics,  
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# Math 258 - Seminar/Differential Geometry

**Prof. Dan Popovici**

University of Toulouse

## Hermitian-symplectic and Kähler Metrics on Compact Complex Manifolds

### Abstract:

This is joint work with S. Dinew (Krakow). We investigate the class of compact complex Hermitian-symplectic manifolds  $X$ . For each Hermitian-symplectic metric  $\omega$  on  $X$ , we introduce a functional acting on the metrics in a certain cohomology class of  $\omega$  and prove that its critical points (if any) must be Kähler when  $X$  is 3-dimensional.

We go on to exhibit these critical points as maximisers of the volume of the metric in its cohomology class and propose a Monge-Ampère-type equation to study their existence. Our functional is further utilised to define a numerical invariant for any cohomology class of Hermitian-symplectic metrics that generalises the volume of a Kähler class. We obtain two cohomological interpretations of this invariant.

Host: Peter Ebenfelt

**Monday, November 29, 2021**

**11:00 AM**

**Zoom: <https://ucsd.zoom.us/j/98902196321>**

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