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Regular Session:

Speaker: Robert Conte (LRC MESO, Centre Borelli, ENS Paris-Saclay, France & Department of Mathematics, The University of Hong Kong.)

Collaborator: Ma Hui (Tsinghua Beijing)

Title: *Lagrangian Bonnet surfaces in $\mathbb{C}\mathbb{P}^2$*

Abstract: Bonnet surfaces [2, 4] are six-parameter surfaces in $\mathbb{R}^3(c)$ whose metric is a particular Chazy C_{VI} function [3], an algebraic transform [1] of the sixth Painlevé function. For Lagrangian surfaces in the two-dimensional complex space forms $\tilde{\mathbb{M}}^2(4\kappa)$ [5], we define the Bonnet problem and we solve it by the method of Bonnet. The resulting Lagrangian Bonnet surfaces exist for any sectional curvature κ and their metric is also a particular Chazy C_{VI} .

References

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- [2] O. Bonnet, *J. École polytechnique* **42** (1867) 1–151. <http://gallica.bnf.fr/ark:/12148/bpt6k433698b/f5.image>
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- [4] R. Conte and M. Musette, *The Painlevé handbook* (Springer Nature, Switzerland, 2020). <https://doi.org/10.1007/978-3-030-53340-3>
- [5] Huixia He, Hui Ma and Erxiao Wang, *Acta Mathematica Sinica, English Series* **35(8)** (2019) 1357–1366. <https://doi.org/10.1007/s10114-019-8102-5>