

UNIVERSITY OF CRETE  
DEPARTMENTS OF MATHEMATICS AND APPLIED MATHEMATICS

ANALYSIS SEMINAR

10:00am, Wednesday, 6 November 2019  
Room A-303

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*Free surface of an ideal fluid flow with a singular sink*

A two-dimensional steady problem of a potential free-surface flow of an ideal incompressible fluid caused by a singular sink is considered. The sink is placed at the horizontal bottom of the fluid layer. By employing a conformal mapping, the problem is equivalently rewritten in the unit circle. With the help of the Levi-Civita technique, the problem is reformulated as an operator equation in a Hilbert space. It is proved that there exists a unique solution of the problem provided that the Froude number is greater than some particular value. The free boundary corresponding to this solution is investigated.