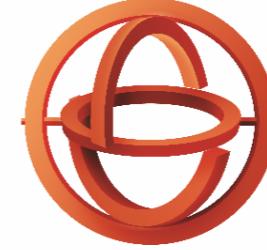


Description of Funded Research Projects

1<sup>st</sup> Call for H.F.R.I. Research Projects  
to support Post-Doctoral Researchers



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Research Project Title:

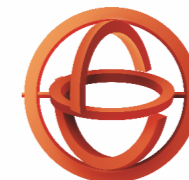
**Singularities in nonlinear elliptic  
problems**

**Principal Investigator:**  
**Christos Sourdis**

**Popular Title:**  
**Singularities in nonlinear elliptic problems**

**Scientific Field:**  
**Mathematics and Information Science**

**Host Institution:**  
**National and Capodistrian  
University of Athens, dep. of  
Mathematics**



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We propose to study the emergence of singularities in a class of nonlinear singularly perturbed elliptic partial differential equations. More precisely, our interest will be on the presence of corner singularities in the singular limit profile (corner layers) or its level sets (junctions).

For mathematicians, these points (or higher dimensional manifolds) are particularly exciting. We will study such phenomena in a variety of problems of high current interest, arising in Bose-Einstein condensation, combustion theory, geometry, phase transitions and spatial ecology. Even though at first glance these problems may seem to be otherwise unrelated, they are selected so that the study of one may benefit the other.



## **Funding**

Amount: **95,000 €**

Duration: **36 months**

Foundation: **H.F.R.I.**





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