### 数学与系统科学研究院

计算数学所学术报告

## <u>报告人:</u> Prof. Bernadette Miara

( Universit é Paris-Est )

## <u>报告题目</u>: STABILITY OF THE CONTACT ZONE FOR A SHALLOWSHELL

<u>邀请人:</u> 崔俊芝 院士

曹礼群 研究员

# <u>报告时间</u>: 2015 年 6 月 5 日 (周五) 上午 9:30~10:30

<u>报告地点</u>:数学院南楼二层 202 会议室

## Abstract:

This work deals with the variation of the solution to an obstacle problem with respect to the variation of its parameters. More precisely, a mechanical structure is pushed by some external forces against an obstacle in such a way that the equilibrium solution involves a part of the domain in which the structure is strictly in contact with the obstacle. It is known from the theory of variational inequalities that studying the variation of the solution as the external forces vary amounts to studying the variation of the boundary of this contact zone. This problem has been studied in previous works in the scalar case, and it was open in the general case where the unknown is a vector field, due to the coupling between the components. As a first step, the present work considers the case of a linearly elastic shallow membrane shell where the coupling between the in-plane and normal components of the displacement arises from the curvature.

This is a joint work with Dr A.L éger, Laboratoire de M écanique et d'Acoustique, Marseille

#### References

-Schaeffer D.G., A stability theorem for the obstacle problem, Advances in mathematics 16, 34-47, 1975.

-L éger A., Miara B., (2008), "Mathematical justification of the obstacle problem in the case of a shallow shell", J. Elasticity, 90, 241-257.

-L éger A., Miara B., (2008), "The obstacle problem for shallow shells: a curvilinear approach", Int. J.

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-L éger A., Miara B., (2014), 'Stability in the obstacle problem for a shallow shell", to appear in Analysis and Applications

