ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

Institut d'Analyse et Calcul Scientifique (IACS)
Section Mathématiques

SEMINAIRE D'ANALYSE

➢ *VENDREDI 29 mai 2009 à 16h15 à la salle MA A330*

*Monsieur **Alfred WAGNER** (Institut für Mathematik,RWTH Aachen, Germany)* donnera une
conférence sur le thème:

"OPTIMIZATION PROBLEMS FOR FUNCTIONALS WITH MASS CONSTRAINT"

Abstract: We consider variational problems with a constraint on the mass of the support
of the minimizer. This constraint is introduced as a penalization term into the functional
and forces the minimizer to create a free boundary.
In a first step we find the optimal regularity for the minimizer. This already allows to
derive qualitative properties of the free boundary.
In a second step the regularity of the free boundary is investigated. For special examples
one can show that the free boundary is locally the graph of a smooth function. As
examples we will in particular focus on eigenvalue problems and on the nonlinear torsion
problem (joint work with C. Bandle (Basel)).

Lausanne, le 23 mars 2009
BD/BB/VL