國立中央大學數學系
專題演講

主講人：**Prof. Yoshitsugu Kabeya (Osaka Prefecture**

   University)

題目：**Bifurcation diagrams of a nonlinear elliptic equation on a**
   spherical cap

時間：**2013 年 12 月 19 日(星期四) 2:30 p.m. ~ 4:00 p.m.**

地點：中央大學鴻經館**M 302**室

摘要：

We study the problem

$$\begin{cases} \Lambda u + \lambda(u^p - u) = 0 \text{ in } \Omega_\epsilon \subset \mathbb{S}^n \subset \mathbb{R}^{n+1}, \\ u > 0 \text{ in } \Omega_\epsilon, \\ \partial_{\mathbf{n}} u = 0 \text{ on } \partial\Omega_\epsilon, \end{cases} \qquad (1)$$

where Λ is the Laplace-Beltrami operator on the unit sphere $\mathbb{S}^n$, $n \geq 2$, $p > 1$, Ω_ϵ is the spherical cap centered at the North Pole $(0, 0, \ldots, 0, 1)$ of geodesic radius $\pi - \epsilon$, $\epsilon > 0$, $\partial_{\mathbf{n}}$ denotes the differentiation along the direction of the outer normal vector to the boundary, and $\lambda > 0$ is a parameter. We treat the case when ϵ is small and discuss how the eigenvalues and the bifurcation diagrams are affected by the domain perturbation. This talk is based on the joint work with C. Bandle (Universität Basel, Switzerland) and H. Ninomiya (Meiji University, Japan).

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