國立陽明交通大學應用數學系

學術演講公告

主講人：彭俊文博士(University of Rochester)

講　題：An embedding of the arboreal Galois group for PCF maps over a number field

時　間：110 年 5 月 11 日(星期二) 下午 14:00 –15:00

地　點：(光復校區) 科學一館 223 室

茶　會：當天下午 13:30 (科學一館 205 室)

ABSTRACT. Let $f : \mathbb{P}^1_K \to \mathbb{P}^1_K$ be a rational map defined over a field K, and let K_n be the splitting field of $f^n(X) - \alpha = 0$ with $\alpha \in K$. We study the Galois group $G_n = Gal(K_n/K)$. Odoni has showed that, avoiding a finite subset of $\mathbb{P}^1_K$, the profinite group $G_\infty = \varprojlim_n G_n$ acts on the infinite d-ary regular tree T_∞, and hence we obtain a Galois representative, so called arboreal representative, from G_∞ to the automorphism of trees $\mathrm{Aut}(T_\infty)$).

Generically, this embedding is surjective or has finite index. However when f is a post-critical-finite(PCF) map, Jones showed that the image of G_∞ is an infinite index subgroup of $\mathrm{Aut}(T_\infty)$. By explicitly computing the discriminant of a PCF map, we are able to find two kinds of infinite index subgroups of $\mathrm{Aut}(T_\infty)$ such that the image of any PCF map is in one of the subgroups. People have found a family of PCF maps, called single-cycle Belyi maps, which has the image isomorphic to one of the subgroups. We are able to find a new PCF map that is also isomorphic to the subgroup.

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