FGC-IPM Joint Number Theory Seminars

We cordially invite you to join the webinar following the first joint event organized by FGC-Istanbul and IPM-Tehran, 1st FGC-IPM Joint Number Theory Meeting (March 15-17 2021). This week's speaker will be **Abbas Maarefparvar (IPM)**. You may join this event using the zoom link below. We hope that you will find the time to attend this event in your schedule.

Title: Polya and pre-Polya groups in dihedral number fields
Time: Tuesday, 27 April, 2021, 17:30-19:30 (Iran local time)

Zoom link: https://zoom.us/j/9299700405?pwd=VTM5OW53dWFkbjcxQXBBalhiNWc2dz09
Meeting ID: 929 970 0405
Passcode: 210406

Abstract. For a number field K with the ideal class group $Cl(K)$, Polya group of K is the subgroup $Po(K)$ of $Cl(K)$ generated by the classes of *Ostrowski ideals* $\Pi_q(K)$, where $q \geq 1$ is a prime power integer and $\Pi_q(K)$ denotes the product of all maximal ideals of K with norm q. K is called a *Polya field*, Whenever $Po(K)$ is trivial. Polya fields are a generalization of PID (class number one) number fields, and classically they are defined in terms of regular bases for rings of *integer valued polynomials* due to George Polya.

For Galois number fields K investigating on Polya-ness can be expressible in terms of the action of the Galois group on the ideal class group: $Po(K)$ and the subgroup of $Cl(K)$ generated by the strongly ambiguous ideal classes coincide. In particular, Zantema (whose paper is a great contribution in this subject) showed that in the Galois case, Polya groups are *controllable part* of ideal class groups throughout Galois cohomology and ramification. Beside, investigating on Polya groups in the non-Galois number fields (the more difficult situation), Chabert introduced the notion of pre-Polya group $Po(-)_{nr}$, which is a generalization of the pre-Polya condition, duo to Zantema.

The first part of my talk would be about some results of a joint work with Ali Rajaei, where using Zantema's result and the arithmetic in ramification theory, we found some results on Polya groups of dihedral extensions of $\mathbb{Q}$ of order 2ℓ for ℓ an odd prime. In the second part, I'll talk about my recently results on the pre-Polya group of a D_n-field K, for $n \geq 4$ an even integer, where D_n denotes the dihedral group of order $2n$.