also find a quadratic upper bound of the minimal crossing number of delta diagrams of $L$.

[KT-21] **Thin position for incompressible surfaces in 3-manifolds**
Kazuhiro Ichihara (Nihon University)

I will talk about an algorithm to build 3-manifolds with closed separating incompressible surfaces and about thin position method to study such surfaces and Heegaard splittings.

[KT-22] **Loop braid groups: ubiquitous objects opening the door to a plethora of questions**
Celeste Damiani (OCAMI)

The study of loop braid groups has been widely developed during the last twenty years, in different domains of mathematics and mathematical physics. They have been called with several names such as motion groups, groups of permutation-conjugacy automorphisms, braid-permutation groups, welded braid groups and untwisted ring groups. We will give a glance on how every equivalent definition carries open questions in the domain it belongs to.

[KT-23] **Vanishing elements in a knot group by Dehn fillings**
Kimihiko Motegi (Nihon University)

Let $K$ be a hyperbolic knot in the 3-sphere and $G(K)$ the knot group of $K$. We show that for each nontrivial element $g$ in $G(K)$, there are only finitely many Dehn fillings which trivialize $g$. This is joint work with Kazuhiro Ichihara and Masakazu Teragaito.