Senior Whitehead Prize: citation for Tara Brendle

Short citation:

Professor Tara Brendle of the University of Glasgow is awarded a Senior Whitehead Prize for her fundamental work in geometric group theory, concentrating on the study of groups arising in low-dimensional topology, and for her exemplary record of work in support of mathematics and mathematicians.

Long citation:

Professor Tara Brendle of the University of Glasgow is awarded a Senior Whitehead Prize for her fundamental work on the structure of infinite discrete groups using geometric, topological and combinatorial methods.

Brendle is recognised as one of the world's foremost experts on surface mapping class groups, their subgroups and related groups such as braid groups and automorphism groups of free groups. These groups play key roles in many branches of mathematics, including the topology of low-dimensional manifolds, algebraic geometry, complex analysis and geometric group theory.

Brendle's most influential work centres around her development of novel representations and presentations of the groups she studies, often proceeding by analysing the symmetries of related structures. For example, her work with D. Margalit on the Johnson kernel demonstrates that the mapping class can be recovered as the abstract commensurator of this subgroup, so that the Johnson kernel in fact contains all information about the entire group. Together with various co-authors, Brendle developed these ideas into a general framework for identifying the mapping class group with the automorphism group of a simplicial complex. This explained many earlier results in the literature as well as providing a powerful new tool for studying related groups.

Other notable achievements (with various co-authors) include resolving Hain's conjecture concerning the moduli space of hyperelliptic curves, making substantial progress on the mysterious cohomology of Torelli groups, and seriously restricting the possible approaches to deciding whether surface mapping groups are linear.

Brendle is an inspiring lecturer and excellent expositor, as she has demonstrated in numerous short courses, summer schools and workshops over the years. Her outstanding lecturing skills are also recognised and highly appreciated in research conferences, where her clear and compelling lectures have been a launching point for numerous research collaborations.

Brendle's exemplary work in support of mathematics and mathematicians includes an outstanding commitment to promoting equality and diversity in the field.