

Melanie Matchett Wood – LMS Honorary Member citation

Short citation:

The London Mathematical Society has elected Professor Melanie Matchett Wood, of Harvard University, USA, to Honorary Membership of the Society. Professor Wood's ground-breaking work in arithmetic statistics elegantly combines ideas from arithmetic and algebraic geometry, topology, probability and random groups.

Long citation:

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Professor Melanie Matchett Wood received her PhD in 2009 from Princeton University, where she was supervised by Manjul Bhargava. Her thesis gives several explicit constructions of moduli spaces of rings and ideals over an arbitrary base, including describing the rings parametrised by binary n -ic forms, for all n , and giving a parametrisation of ideal classes in those rings.

Wood's groundbreaking work in arithmetic statistics elegantly combines ideas from arithmetic and algebraic geometry, topology, probability and random groups. She has pioneered the development of the non-abelian Cohen–Lenstra–Martinet programme. Other major contributions include proving cases of the Cohen–Lenstra–Martinet heuristics, several theorems supporting their analogues in the function field setting, and proving cases of Malle's conjecture.

From very early in her mathematical life, Wood has been an inspiring role model for women scientists. She was the first woman to represent the USA at the International Mathematical Olympiad, the first American woman (and second woman overall) to be named a Putnam Fellow, and the first woman to win the Morgan Prize.

Wood has made substantial contributions to the mathematical community, especially through her many courses at research schools for early career mathematicians. Her notes from these courses have become key resources helping new people to enter the field. Her commitment to broadening the accessibility and impact of research in number theory is further demonstrated by her position as a founding editor of the journal *Essential Number Theory*, which is focused on publishing articles of excellent utility and clarity, accessible to a large audience including graduate students. To date, Wood has mentored 14 PhD students and postdoctoral researchers, and over 40 undergraduate researchers.

Wood has received numerous accolades recognising her outstanding research achievements, including election to the American Academy of Arts and Sciences, the Presidential Early Career Award for Scientists and Engineers, fellowship of the American Mathematical Society, the NSF Alan T. Waterman Award, and a MacArthur Fellowship, to name just a few.