

## Citation for Akshay Venkatesh.

The Ostrowski Prize for 2017 is awarded to Akshay Venkatesh for his groundbreaking work in number theory, the theory of automorphic forms and representation theory, homogeneous dynamics, and arithmetic geometry. Venkatesh is notable for his originality and his ability to synthesize between different fields, bringing conceptually new tools to bear against long-standing problems with striking consequences. This not only advances the state of our knowledge, but plants the seed of further progress by exploring and highlighting previously unexplored connections between different mathematical fields.

Among his notable results are his work on subconvex estimates for L-functions, in part joint with Philippe Michel, where a unified treatment of all previous subconvex estimates for  $GL_2$  forms is given and new important cases of subconvexity are established by exploiting the link between subconvex estimates and effective equidistribution. Along the way, Venkatesh also proved significant new results regarding sparse equidistribution questions in homogeneous dynamics. This theme of effective equidistribution results and its connection with analytic number theory is further explored in his work with Einsiedler, Margulis and Mohammadi on effective equidistribution for periodic orbits of semisimple groups, where, in particular, the effective approach allows Venkatesh and his collaborators to prove new equidistribution results that are not approachable even qualitatively by previous techniques. The fruitful interaction between a wide range of number theoretic and dynamical techniques are also displayed in his work with Einsiedler, Lindenstrauss and Michel on a cubic analogue of Duke's well known results on equidistribution of CM-points and in his work with Ellenberg about the very classical problem of the local-to-global principle for representing quadratic forms by a given quadratic form in more variables, dramatically reducing the co-dimension needed for a local-to-global result to hold.

Recently, another unexpected connection between mathematical fields was explored by Venkatesh in collaborations with Bergeron and Calegari in the study of the difficult problem of counting torsion classes in the cohomology of arithmetic varieties, where analytic tools from differential geometry and specifically analytic torsion are employed.

Akshay Venkatesh, born in 1981 in New Delhi, India, finished his PhD in mathematics at the Princeton University in 2002. After holding positions at the University of Western Australia, the Massachusetts Institute of Technology, and Courant Institute, he has got a professorship at the Stanford University in 2008.