

GEOMETRIC LANGLANDS CONJECTURE

Hot Topics Workshop
MSRI/SLMath, Berkeley, CA, April 6 to 10, 2026

The proof

D. ARINKIN, D. BERALDO, J. CAMPBELL, L. CHEN, J. FAERGEMAN, D. GAITSGORY, K. LIN, S. RASKIN, and N. ROZENBLYUM, Proof of the geometric Langlands conjecture, 2024

General geometric Langlands

A. BEILINSON and V. DRINFELD, *Quantization of Hitchin's integrable system and Hecke eigensheaves*, Unpublished manuscript, 1991

D. GAITSGORY, Outline of the proof of the geometric Langlands conjecture for GL_2 , in *De la géométrie algébrique aux formes automorphes (II): Une collection d'articles en l'honneur du soixantième anniversaire de Gérard Laumon*, J.-B. BOST, P. BOYER, A. GENESTIER, L. LAFFORGUE, S. LYSENKO, S. MOREL, and B. C. NGÔ, eds., Astérisque **370**, Société Mathématique de France, Paris, France, 2015, ISBN 978-2-85629-806-0, pp. 1–112. MR Zbl arXiv

Satake

X. ZHU, An introduction to affine Grassmannians and the geometric Satake equivalence, in *Geometry of moduli spaces and representation theory* (Park City, UT, 2015), R. BEZRUKAVNIKOV, A. BRAVERMAN, and Z. YUN, eds., IAS/Park City Mathematics Series **24**, American Mathematical Society, Providence, RI, 2017, ISBN 978-1-4704-3574-5, pp. 59–154. MR Zbl arXiv

Kac–Moody representations

E. FRENKEL, *Langlands correspondence for loop groups*, Cambridge Studies in Advanced Mathematics **103**, Cambridge University Press, Cambridge, England, 2007, ISBN 978-0-521-85443-6. MR Zbl

Chiral/factorization/vertex algebras

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E. FRENKEL and D. BEN-ZVI, *Vertex algebras and algebraic curves*, 2nd ed., Mathematical Surveys and Monographs **88**, American Mathematical Society, Providence, RI, 2004, ISBN 0-8218-3674-9. MR Zbl

Derived algebraic geometry

D. GAITSGORY and N. ROZENBLYUM, *A study in derived algebraic geometry, I: Correspondences and duality*, Mathematical Surveys and Monographs **221**, American Mathematical Society, Providence, RI, 2017, ISBN 978-1-4704-3569-1. MR Zbl

D. GAITSGORY and N. ROZENBLYUM, *A study in derived algebraic geometry, II: Deformations, Lie theory and formal geometry*, Mathematical Surveys and Monographs **221**, American Mathematical Society, Providence, RI, 2017, ISBN 978-1-4704-3570-7. MR Zbl