

REPRESENTATION THEORY UNDER THE INFLUENCE OF QUANTUM FIELD THEORY & MOTIVIC HOMOTOPY THEORY

Introductory Workshop, MSRI/SLMath, August 24 to 28, 2026

BOOKS

- [1] D.-C. CISINSKI and F. DÉGLISE, *Triangulated categories of mixed motives*, Springer Monographs in Mathematics, Springer, Cham, Switzerland, 2019, ISBN 978-3-030-33241-9; 978-3-030-33242-6. [MR](#) [Zbl](#)
- [2] P. DELIGNE, P. ETINGOF, D. S. FREED, L. C. JEFFREY, D. KAZHDAN, J. W. MORGAN, D. R. MORRISON, and E. WITTEN (eds.), *Quantum fields and strings: a course for mathematicians, Vols. 1, 2: Material from the Special Year on Quantum Field Theory held at the Institute for Advanced Study, Princeton, NJ, 1996–1997*, American Mathematical Society, Providence, RI, 1999, ISBN 0-8218-1198-3. [MR](#) [Zbl](#)
- [3] 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](#)
- [4] 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](#)
- [5] 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](#)
- [6] C. HAESEMEYER and C. A. WEIBEL, *The norm residue theorem in motivic cohomology*, Annals of Mathematics Studies **200**, Princeton University Press, Princeton, NJ, 2019, ISBN 978-0-691-19104-1; 978-0-691-18182-0. [MR](#) [Zbl](#)
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- [9] C. MAZZA, V. VOEVODSKY, and C. WEIBEL, *Lecture notes on motivic cohomology*, Clay Mathematics Monographs **2**, American Mathematical Society, Providence, RI, 2006, ISBN 978-0-8218-3847-1; 0-8218-3847-4. [MR](#) [Zbl](#)
- [10] F. MOREL, *$\mathbb{A}^1$ -algebraic topology over a field*, Lecture Notes in Mathematics **2052**, Springer, Heidelberg, Germany, 2012, ISBN 978-3-642-29513-3. [MR](#) [Zbl](#)
- [11] D. C. RAVENEL, *Complex cobordism and stable homotopy groups of spheres*, 3rd ed., 2026, Originally published in 1986 by Academic Press as volume 121 of the series Pure and Applied Mathematics (ISBN 0-12-583430-6; 0-12-583431-4). Second edition published in 2004 by the AMS. [MR](#) [Zbl](#)

PAPERS

- [1] A. ASOK and F. MOREL, *Smooth varieties up to $\mathbb{A}^1$ -homotopy and algebraic h -cobordisms*, *Adv. Math.* **227** (2011), no. 5, 1990–2058. [MR](#) [Zbl](#)
- [2] R. BEZRUKAVNIKOV and A. BRAVERMAN, *Geometric Langlands correspondence for $\mathcal{D}$ -modules in prime characteristic: the $GL(n)$ case*, *Pure Appl. Math. Q.* **3** (2007), no. 1, 153–179. [MR](#) [Zbl](#)

- [3] B. DREW and M. GALLAUER, [The universal six-functor formalism](#), *Ann. K-Theory* **7** (2022), no. 4, 599–649. [MR](#) [Zbl](#) [arXiv](#).
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- [7] P. SCHOLZE, *Six-functor formalisms*, preprint MPIM-Bonn-2025, Max Planck Institute for Mathematics, Bonn, Germany, 2026. [arXiv](#).
- [8] R. TRAVKIN, [Quantum geometric Langlands correspondence in positive characteristic: the \$GL_N\$ case](#), *Duke Math. J.* **165** (2016), no. 7, 1283–1361. [MR](#) [Zbl](#)