Proof by OpenAI of the existence of Quantum Yang-Mills Theory

3rd Statement by the Shepherding Committee, Nov. 9, 2026

Michael R. Douglas

David J. Gross (Chair)

Arthur Jaffe

Igor R. Klebanov

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We update the progress of our committee in shepherding the LLM produced result on the existence of quantum Yang-Mills theory to the community of scientists.

Tomorrow, Tuesday November 10, we will publish two GitHub repos:

Full Lean code submitted by OpenAI to the group on Oct 28, 2026,

https://github.com/yang-mills-group/OpenAI-YM-20261028

Validation of the OpenAI Yang–Mills construction (Lean proof),

which summarizes the results and our checks of this submission, specifically that it proves the existence of pure Yang-Mills theory according to the problem statements which are standard in physics and mathematics.

https://github.com/yang-mills-group/YM/blob/main/docs/assessment-1.pdf

We thank Ron Nissim and Fred Rajasekaran for contributions to this assessment.