What comes after Cappelli-Itzykson-Zuber's A-D-E?

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One of the most celebrated results in Conformal Field Theory is the classification by Cappelli-Itzykson-Zuber in 1987 of the conformal field theories with sl(2) symmetry. They found that it falls mysteriously into an A-D-E pattern. A few years later the analogous result for sl(3) was obtained; these have a mysterious connection with Jacobians of Fermat curves. Until recently, very little else was known. The hard part of the problem concerns the possible extensions of the rational vertex operator algebras coming from Lie algebras. This can be thought of as the nonabelian version of extending lattices. My talk is aimed at nonexperts. It describes the history of the problem, and a recent breakthrough. And it will ask for your help in seeing what comes after A-D-E and Fermat curves.