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Lisa Carbone* (carbonel@math.rutgers.edu), Rutgers, The State University of New Jersey, 110 Frelinghuysen Rd, Hill Center/Busch Campus, Piscataway, NJ 08854, Elizabeth Jurisich (jurisiche@cofc.edu), Department of Mathematics, College of Charleston, 66 George Street, Charleston, SC 29424, and Scott H. Murray (scotthmurray@gmail.com), Department of Mathematical and Computational, University of Toronto Mississauga, 3359 Mississauga Road, Mississauga, ON L5L 1C6, Canada. A Lie group analog for the monster Lie algebra. Preliminary report.

Let \mathfrak{m} be the monster Lie algebra. We construct a group $G(\mathfrak{m})$ associated to \mathfrak{m} by generators and relations. The presentation of $G(\mathfrak{m})$ is an analog of Tits' presentation of an adjoint Kac-Moody group. We construct imaginary root groups for all imaginary roots of \mathfrak{m} . The subgroup U^+ of $G(\mathfrak{m})$ generated by all positive root groups embeds in the automorphism group of a completion $\widehat{\mathfrak{m}}$ of \mathfrak{m} and there is an analog of the Adjoint representation $\operatorname{Ad}: U^+ \to \operatorname{Aut}(\widehat{\mathfrak{m}})$. (Received August 19, 2019)