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Collapse of the critical state in superconducting niobium[1] RUSLAN PROZOROV, Ames Laboratory and Department of Physics & Astronomy, Iowa State University, Ames, Iowa 50011, DANIEL V. SHANTSEV, Department of Physics, University of Oslo, P. O. Box 1048 Blindern, 0316 Oslo, Norway, ROMAN G. MINTS, School of Physics and Astronomy, Raymond and Beverly Sackler Faculty of Exact Sciences, Tel Aviv University, Tel Aviv 69978, Israel — Giant abrupt changes in the magnetic flux distribution in niobium foils were studied by using magneto-optical visualization, thermal and magnetic measurements. Uniform flux jumps and sometimes almost total catastrophic collapse of the critical state are reported. Results are discussed in terms of thermomagnetic instability mechanism with different heat removal channels. Video figures are available at: http://www.cmpgroup.ameslab.gov/supermaglab/video/Nb.html

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