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Black hole formation by rotational instabilities BURKHARD ZINK, LSU, NIKOLAOS STERGIOULAS, Aristotle University of Thessaloniki, Greece, IAN HAWKE, University of Southampton, UK, CHRISTIAN D. OTT, AEI, Germany, ERIK SCHNETTER, LSU, EWALD MUELLER, MPA, Germany — We investigate the role of rotational instabilities in the context of black hole formation in relativistic stars. In addition to the standard scenario - an axially symmetric dynamical instability forming a horizon at the star's center - the recently found low-$T/|W|$ instabilities are shown to lead to fragmentation and off-center horizon formation in differentially rotating stars. This process might be an alternative pathway to produce SMBHs from supermassive stars with inefficient angular momentum transport.

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