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Justin Holmer and **Svetlana Roudenko***, School of Math and Stat Sciences, Arizona State University, Tempe, AZ 85287-1804. *Blow up solutions to the 3d focusing cubic NLS equation.*

For the focusing NLS equation $iu_t + \Delta u + |u|^2 u = 0$, $(x, t) \in \mathbb{R}^3 \times \mathbb{R}$ and $u_0 \in H^1$, we review various conditions for solutions that blow up in finite time and discuss the construction of a family of axially symmetric solutions that blow up on a circle. (Received February 23, 2010)