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Highly Transparent and Conductive Metallized Nanofibers by Electrospinning and Electroplating SAM S. YOON, Korea University, Seoul, ALEXANDER L YARIN, University of Illinois at Chicago — Transparent conducting films (TCFs) and transparent heaters (THs) are of interest for a wide variety of applications, from displays to window defrosters. Here, we demonstrate production of highly flexible, conducting, and transparent copper (Cu), nickel (Ni), platinum (Pt), and silver (Ag) nanofibers suitable for use not only in TCFs and THs but also in some other engineering applications. The merging of fibers at their intersections (i.e. self-junctioning) minimizes contact resistance in these films. These metallized nanofibers exhibited a remarkably low sheet resistance at a high optical transmittance. This low sheet resistance allows them to serve as low-voltage heaters, achieving a high heating temperature at a relatively low applied voltage. These nanofibers are free-standing, flexible, stretchable, and their mechanical reliability was confirmed through various mechanical endurance tests.

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