

Pre-Lab Exercises

Lab #8: Doping

MIT Nanomaker_Spring 2013

- 1) Read the Scientific American articles on Damascus steel and nanocomposite plastics.
- 2) What is responsible for giving the Damascus steel its legendary strength? What is responsible for giving the nanocomposite plastics their equally impressive, albeit somewhat-less-legendary, strength?
- 3) Both materials take advantage of doping to dramatically change a material's mechanical properties. What other properties of a material can be changed by doping? List some examples.
- 4) In this lab, we'll be investigating how adding nickel nanoparticles to PDMS changes its properties. How would you describe the properties of PDMS (optical, thermal, electrical, mechanical)? How might these properties be affected by introducing nickel?

Weekly Challenge: Do you hate taking off your gloves in winter to answer your phone? Make your own gloves that work with a touch screen.

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