Long-standing dark-matter detection claim takes a hit

Using similar detector technology to that of the DAMA experiment, a new dark-matter search finds no evidence of WIMPs.

Amid all the null results in the quest to directly detect dark matter, one research group has unwaveringly claimed success. Since 1997, researchers with the DAMA experiment in Italy have contended that their crystals of ultrapure sodium iodide are detecting particles that fit the profile of weakly interacting massive particles (WIMPs), a leading dark-matter candidate. The collaboration reports an unambiguous signal that peaks in the summer and fades in the winter. Though few researchers doubt that DAMA is seeing something, there are reasons to question the collaboration's interpretation of GeV-mass WIMPs. Experiments using xenon, germanium, and other kinds of detectors—as well as DAMA's latest results—seem to rule out at least the standard variety of WIMP as the culprit. And until recently, no other research team had been able to acquire NaI crystals with sufficient purity to perform an analogous search. Now the first of several long-awaited NaI-based dark-matter hunts has released its findings. Though more data are needed to verify the annual modulation of DAMA's signal, the results strongly disfavor a generic WIMP interpretation.