

# Physics Seminar

Wednesday 2/3/2010, 4:30 pm  
Science & Engineering Building Auditorium

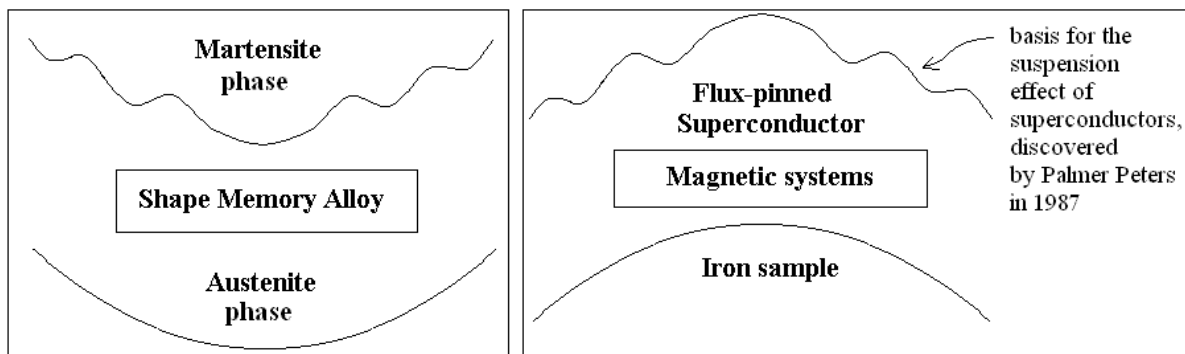
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## Damping Anharmonicity, Is It a Beckoning Physics Frontier?

The world of physics is intimately familiar with elastic anharmonicity, which is responsible for a variety of well known phenomena, including thermal expansion. The other ubiquitous form of anharmonicity, where Hooke's law is not obeyed, is one in which the potential function depends on complicated many-body defect properties. It contains either fine-structure at low level, as illustrated in the figure, or it is not stationary. In this talk, conclusions will be drawn from a large number of experiments, conducted by the speaker over the last two decades, and focused on the complexities of internal friction. These conclusions will be seen to point toward three important (independently performed, but related) experiments\*, all conducted in the early part of the 20<sup>th</sup> century. Surprisingly, the five investigators responsible for these experiments are still unknown to most of the world of physics. Whether the attitudes responsible for this oversight continue for additional decades remains to be seen.

\* Investigator names: Barkhausen, Portevin/Le Chatelier, Kimball/Lovell



Potential functions showing similar (though opposite curvature) features of the (i) martensite SMA and (ii) flux-pinned high-T<sub>c</sub> superconductor

*Please join us for light refreshments at 4:15pm outside SEB 203.*