

Megagauss magnetic fields for fusion **FREE**

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Megagauss magnetic fields for fusion

In his letter "Tales of the Soviet hydrogen bomb" (PHYSICS TODAY, January 2018, page 13), Lars-Erik De Geer refers to "Soviet experiments in which extremely strong magnetic fields had been used to compress fusion materials." That approach, which may have originated with Andrei Sakharov, has been continued over five decades by his followers and

has recently involved official rather than *de facto* cooperation between the US and Russia. Indeed, a Russian monograph on such work was published by Los Alamos National Laboratory.¹ An experimental test of one approach to using megagauss magnetic fields for controlled fusion was even carried out jointly at a secure site at Los Alamos.²

More recently the US Department of Energy has sponsored a program to enable low-cost fusion research for the development of imploding-liner technology, which would allow repeated application of megagauss fields to compress fusion plasma.³ By combining conventional magnetic and inertial confinement approaches, magneto-inertial fusion may significantly reduce the cost of controlled fusion. So Sakharov—and, independently, Enrico Fermi—may have been right half a century ago to suggest high magnetic fields for fusion energy.

References

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3. P. J. Turchi, S. D. Frese, M. H. Frese, *IEEE Trans. Plasma Sci.* **45**, 2800 (2017).

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Sociophysics of social conflict

We welcome Frank Schweitzer's article, "Sociophysics" (PHYSICS TODAY, February 2018, page 40), which looks back at antecedents of current physics applications to social phenomena. Schweitzer calls for overcoming challenges that derive from method-driven (physics) perspectives. To his list of examples we propose to add another: problem-driven work. We—an urban planner and two physicists—started out with social conflict, looked at its real problems, and reached for statistical mechanics tools to explore its dynamics over time.

Social conflicts are embedded in com-

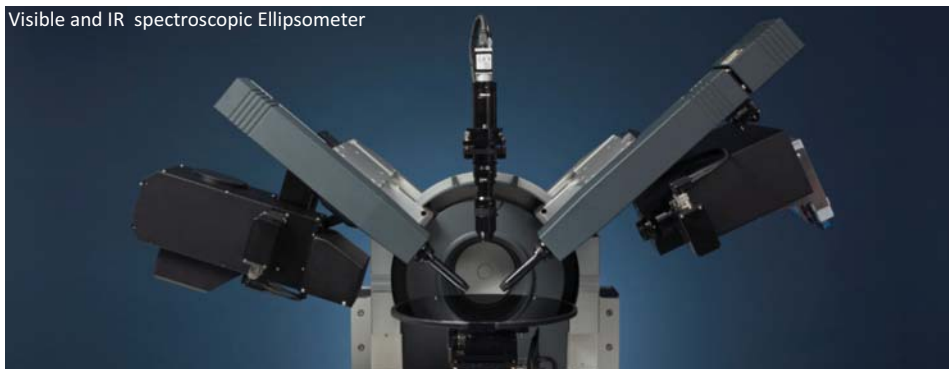
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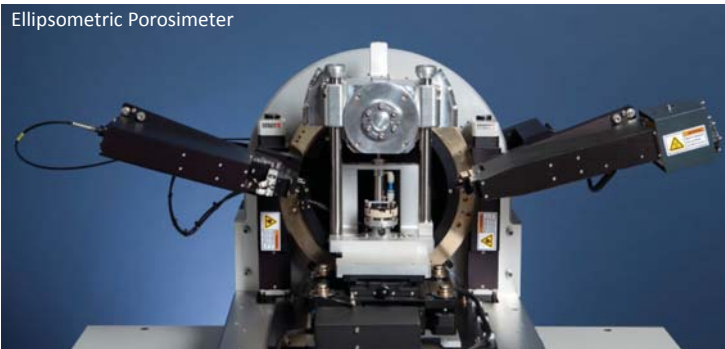


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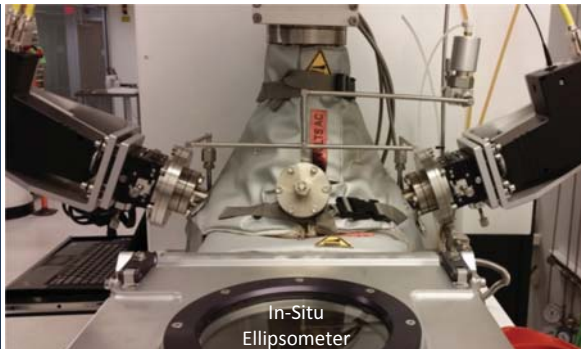
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