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Glass Phenomenology from the Connection to Spin Glasses

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Using an effective potential replica formalism the properties of supercooled liquids near their glass transition are related to those of an Ising spin glass in a magnetic field. Results from the droplet picture of spin glasses are used to provide an explanation of the main features of fragile glasses such as Vogel-Fulcher-like behavior of the dynamics and the growing size as the temperature is reduced of the dynamically re-arranging regions. Exact solutions of one-dimensional fluids with glass-like features have been obtained and will be used to provide illustrations of the connection between glasses and spin glasses.