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Melting of lithium at high pressure SHANTI DEEMYAD, ANNE MARIE SCHAEFFER, University of Utah — At ambient pressure, lithium is the lightest metallic element and the prototype of a simple metal, with a nearly spherical Fermi surface. The structural and electronic properties of lithium at high densities are highly counterintuitive. Under high pressure, lithium undergoes a series of symmetry breaking structural phase transitions and a theoretically predicted complex melting curve. In addition, because of its low atomic mass, lithium may behave as a quantum solid. If this is the case, its melting transition would resemble that of metallic hydrogen, and is of critical interest. Direct observation of the melting transition of lithium under high pressure has been challenging due to its strong reactivity. In this talk I will review the unusual physics of lithium at extreme pressures and present our recent experimental result on high pressure melting curve of lithium.

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