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Title:	Two-step melting of the Weeks-Chandler-Anderson system in two dimensions.
Authors:	Khali, Shubhendu Shekhar (/jspui/browse?type=author&value=Khali%2C+Shubhendu+Shekhar)
Keywords:	Weeks-Chandler-Anderson
Issue Date:	2021
Publisher:	Royal Society of Chemistry
Citation:	Soft Matter, 17(12), 3473-3485. <a href="https://doi.org/10.1039/D0SM01484B">https://doi.org/10.1039/D0SM01484B</a>
Abstract:	We present a detailed numerical simulation study of a two-dimensional system of particles interacting via the Weeks-Chandler-Anderson potential, the repulsive part of the Lennard-Jones potential. With the reduction of density, the system shows a two-step melting: a continuous melting of solid to hexatic phase, followed by a first-order melting of hexatic to liquid. The solid-hexatic melting is consistent with the Berezinskii-Kosterlitz-Thouless-Halperin-Nelson-Young (BKTHNY) scenario and shows dislocation unbinding. The first-order melting of the hexatic to the liquid phase, on the other hand, displays defect-strings formed at the hexatic-liquid interfaces. We present a detailed phase diagram in the density-temperature plane.
Description:	Only IISER Mohali authors are available in the record.
URI:	<a href="https://doi.org/10.1039/D0SM01484B">https://doi.org/10.1039/D0SM01484B</a> ( <a href="https://doi.org/10.1039/D0SM01484B">https://doi.org/10.1039/D0SM01484B</a> ) <a href="http://hdl.handle.net/123456789/5225">http://hdl.handle.net/123456789/5225</a> ( <a href="http://hdl.handle.net/123456789/5225">http://hdl.handle.net/123456789/5225</a> )
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