Phase Diagram of Commensurate Two-Dimensional Disordered Bose Hubbard Model SEBNEM GUNES SOYLER, MIKHAIL KISELEV, The Abdus Salam International Centre for Theoretical Physics, NIKOLAY PROKOF'EV, BORIS SVISTUNOV, Department of Physics, University of Massachusetts Amherst — We do quantum Monte-Carlo simulations to calculate the full ground state phase diagram of the two dimensional disordered Bose-Hubbard model at unity filling factor. We observe superfluid regions persisting up to large values of disorder and interaction strength. In the vicinity of the superfluid-insulator transition of the pure system, the system shows almost unmeasurable response to weak disorder.

Sebnem Gunes Soyler
The Abdus Salam International Centre for Theoretical Physics