Mott Transition, Antiferromagnetism, and d-wave Superconductivity in Two-Dimensional Organic Conductors\textsuperscript{1} A.-M.S. TREMBLAY, BUMSOO KYUNG, Universite de Sherbrooke — We study the Mott transition, antiferromagnetism and superconductivity in layered organic conductors using Cellular Dynamical Mean Field Theory for the frustrated Hubbard model. A $d$-wave superconducting phase appears between an antiferromagnetic insulator and a metal for $t'/t = 0.3 - 0.7$, or between a nonmagnetic Mott insulator (spin liquid) and a metal for $t'/t \geq 0.8$, in agreement with experiments on layered organic conductors including $\kappa$-(ET)$_2$Cu$_2$(CN)$_3$. These phases are separated by a strong first order transition. The phase diagram gives much insight into the mechanism for $d$-wave superconductivity. Two predictions are made.


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