

Part III

Local Forms

Inspired by the elementary normal form in symplectic linear algebra (Theorem 1.1), we will go on to describe normal neighborhoods of a point (the Darboux theorem) and of a lagrangian submanifold (the Weinstein theorems), inside a symplectic manifold. The main tool is the Moser trick, explained in Lecture 7, which leads to the crucial Moser theorems and which is at the heart of many arguments in symplectic geometry.

In order to prove the normal forms, we need the (non-symplectic) ingredients discussed in Lecture 6; for more on these topics, see, for instance, [18, 55, 96].