Impedance Measurements, Computations and their Interpretation, A. HOFMANN, CERN - The impedance represented by the beam surroundings leads to collective effects which limit the intensity of an accelerator. The components seen by the beam are designed for a small impedance with the help of computer codes and of laboratory measurements on models. Once the machine is built different collective effects are measured. The observed parasitic mode loss, bunch lengthening and frequency shifts of the incoherent and the quadrupole mode synchrotron oscillation give integrals over the longitudinal resistive and reactive impedances. Growth or decay rates of head-tail modes and betatron frequency shifts give corresponding information for the transverse impedance. Observing the current dependence of the orbit and of the betatron phase advances around the ring can localize the impedance and distinguish between the different contributions. Coupled bunch mode instabilities are usually driven by a single, narrow band resonance and their behaviour can help to identify the responsible parasitic mode in the cavities. For unbunched beams the oscillating mode gives directly the frequency of the driving resonator. The beam transfer function is a powerful tool to determine the impedance at low frequencies. From a set of observed collective effects a model of the impedance is obtained which can be compared with expectations.