The nanosciences and their companion nanotechnologies are a hot topic all around the world. For some, they promise developments ranging from nanobots to revolutionary new materials. For others, they raise the specter of Big Brother and of atomically modified organisms (AMOs). This book is a counterbalance to spin and paranoia alike, asking us to consider what the nanosciences really are.

Nanosciences are not just a branch of materials sciences, a common misrepresentation fostered in the funding wars. Nor should nanotechnology be confused with miniaturization, a convergence of microelectronics, biotechnology and lab-on-chip techniques. These misconceptions arise from a well-orchestrated US policy dating from the mid-1990s, in which the instrument that lies at the heart of the true nanoscientific revolution — the scanning tunneling microscope (STM) — plays just a minor part. These issues are covered here for the first time in a book by a scientist who holds two Feynman prizes in nanotechnology and who has played a significant role in the birth of the nanosciences. Writing from the cutting edge and with an understanding of the real nature of nanoscientific research, the author provides a scientific and historical perspective on the subject, a response to the misplaced ethical concerns of objectors and to the scaremongering of the popular press.