

# The Particle Odyssey: A Journey to the Heart of Matter

Frank Close, Michael Marten, Christine Sutton



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**The Particle Odyssey: A Journey to the Heart of Matter** Frank Close, Michael Marten, Christine Sutton During the 20th century, scientists discovered what the Universe is made of; as the 21st century begins, they are preparing experiments to find out how it came to be like this. This great adventure, which will involve a metaphorical journey back in time to within a billionth of a second of the Big Bang, is the latest stage in the quest to understand the nature of the matter that makes our Universe and the forces that govern it.

The Particle Odyssey takes the reader on a spectacularly illustrated journey to the heart of matter. In clear, non-technical language the authors describe the key experiments and fundamental discoveries which have led to our current understanding of the origins and nature of the material universe.

In this fascinating book, you will find individual 'portraits' of all the major subatomic particles, from the electron to the top quark. The authors describe the history of experimental particle physics: its origins in the discovery of X-rays in 1895; the dissection of the atom by Rutherford and others; the unexpected revelations of the cosmic rays; the explosion of new particles in the 1950s and 60s; the discovery of quarks and the rise of the 'standard model' in the last part of the 20th

century. And they also look at the great challenges that face physicists today—where did antimatter go? what is dark matter? can there be a theory of everything?—and the experiments they are devising to explore them.

The Particle Odyssey brings together and presents with style over 100 of the best images of particle 'events': mysterious, abstract, beautiful pictures of the tracks of subatomic particles as they speed, curve, dance, or explode through cloud and bubble chambers, stacks of photographic emulsion, and the giant multi-element detectors of modern experiments. Here are spiralling electrons, the tell-tale 'vees' of strange particles, matter and antimatter born from raw energy, energetic jets

of particles spraying out from the decay points of quarks and gluons. A further 250 pictures, many taken specially for this book, illustrate the laboratories, experiments, and personalities of over a century of particle physics.

This superb book is a testament to the work of 'big' science and one of the great detective stories of our age.

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