

Abstract Submitted  
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**Plato's Ideas and the Theories of Modern Particle Physics:  
Amazing Parallels** RUPRECHT MACHLEIDT, University of Idaho — It is generally known that the question, “What are the most elementary particles that all matter is made from?”, was already posed in the antiquity. The Greek natural philosophers Leucippus and Democritus were the first to suggest that all matter was made from atoms. Therefore, most people perceive them as the ancient fathers of elementary particle physics. However, this perception is wrong. Modern particle physics is not just a simple atomism. The characteristic point of modern particle theory is that it is concerned with the symmetries underlying the particles we discover in experiment. More than 2000 years ago, a similar idea was already advanced by the Greek philosopher Plato in his dialogue Timaeus: Geometric symmetries generate the atoms from just a few even more elementary items. Plato's vision is amazingly close to the ideas of modern particle theory. This fact, which is unfortunately little known, has been pointed out repeatedly by Werner Heisenberg.

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