



# Once Before Time: A Whole Story of the Universe

*Martin Bojowald*

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## Once Before Time: A Whole Story of the Universe Martin Bojowald

In his introduction to a revolutionary theory of the cosmos, Martin Bojowald shows how the big bang theory may give way to the big bounce theory, which describes our universe as an eternal series of expansions and contractions, with no beginning and no end.

In 2000, Bojowald, then a twenty-seven-year-old postdoctoral student at Pennsylvania State University, used a relatively new theory called loop quantum gravity—a cunning combination of Einstein's theory of gravity with quantum mechanics—to create a simple model of the universe. Loop quantum cosmology, or LQC, was born, and with it, a theory that managed to do something even Einstein's general theory of relativity had failed to do—illuminate the very birth of the universe.



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