The theory of stellar mass loss

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I will outline the underlying theory of stellar winds and the resulting implications for stellar structure and evolution, with special relevance to the strong radiation-driven outflows from massive stars. Also, an update of the latest mass-loss predictions will be presented, including a discussion of the influence of wind clumping. Finally, I will relate the effects of mass loss on the overall angular momentum evolution of these massive stars -- relevant for the production of long-duration gamma-ray bursts.