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Mass transfer in AGB binaries revisited

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Barium stars and related systems, such as carbon-rich metal-poor stars, are the products of mass transfer from a binary companion during its thermally pulsing AGB phase. These systems are traditionally considered to result mostly from wind mass transfer, because Roche-lobe overflow (RLOF) from an AGB star is thought to be unstable and lead to a common envelope. Several recent theoretical insights are changing this picture. First, hydrodynamical simulations of AGB wind mass transfer show that the orbit may shrink rather than expand, bringing a larger number of systems into RLOF that would otherwise have avoided it. Second, detailed binary evolution modelling of mass transfer from evolved giant stars show that RLOF may be stable for a much wider range of initial mass ratios than has been assumed. In this contribution I will explore the consequences of the increased importance of stable RLOF in AGB binaries for our understanding of barium stars and their siblings.

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