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Organocatalysis, photochemistry and foldamers: the 4-membered ring connection

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Over the last decade, our research group has been investigating different ways in which small molecules that incorporate four-membered rings can be exploited both as intermediates for selective organic synthesis and as building blocks for the programmed construction of larger molecular architectures. These efforts have led us to study sustainable synthetic methodologies, such as organocatalysis for the transformations of cyclobutanones and organic photochemistry for the construction – and subsequent transformation – of four membered-rings. One particularly fruitful area has been the preparation of cyclobutane-containing homologated aminoacids, and especially the use of such species for the preparation of peptidomimetic foldamers in a predictable manner. In this lecture, I will present some of these discoveries to illustrate the immense interest generated by four-membered rings in modern organic chemistry.

SQUARE DEALS FROM 4-MEMBERED RINGS

