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Invasion of open space by multiple competing species

I will discuss a question raised by Shigesada and Kawasaki concerning the stacked invasion fronts of two or more competing species on the real line when the initial values are null or exponentially decaying in a right half-line. In the case of compactly supported initial values, we prove that the first species spreads with the KPP speed of the single species, whereas the speed of the second species can be given by an exact formula depending on the speed of the first species. Generalization to three species, and the relation to the Fisher-KPP waves in shifting habitats will also be discussed. This is joint work with Leo Girardin (Lyons, France), Qian Liu (Shaoyang Univ.) and SHuang Liu (Beijing Inst. Tech., China).