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Abstract for an Invited Paper  
for the MAR15 Meeting of  
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**Dynamics and geometry of interacting fractures in torn elastic sheets: convergent, divergent, and multiple swirling cracks**

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I will present some recent results on the dynamics of multiple interacting cracks in torn elastic sheets. Specifically, I will consider a peeling - like configuration, in which two cracks converge in a robust fashion, and a “concertina” configuration in which two cracks systematically diverge. Based on experiments, I will discuss the non-trivial aspects of both problems, namely the way in which elasticity and fracture mechanics are concomitant when it comes to predict crack paths. Besides, I will show cases in which the trajectory of a crack is dictated by the path followed by another crack. This delayed interaction of cracks allows the construction of multiple crack configurations in which each crack recursively interacts with a nearby crack, giving rise to divergent self-similar spiral trajectories. Finally, I will discuss the effects of material anisotropy on the propagation of cracks. If time permits, I will also present a concise review of a second example of defect dynamics: the motion of conical singularities in thin elastic sheets, subjected to external forcing, and their mutual interaction. Specifically I will consider the gliding, climbing, annihilation and rotation of such structures.