Antiferromagnetic spintronics is an emerging research field which aims to utilize antiferromagnets as core elements in spintronic devices. A central motivation toward this direction is that antiferromagnetic spin dynamics is expected to be much faster than ferromagnetic counterpart because antiferromagnets have higher resonance frequencies than ferromagnets. However, experimental investigations of antiferromagnetic spin dynamics have remained unexplored mainly because of the immunity of antiferromagnets to magnetic fields. In this talk, we show that the antiferromagnetic spin dynamics can be realized in ferrimagnets at the angular momentum compensation point T_A. Using rare-earth–3d-transition metal ferrimagnetic compounds where net magnetic moment is nonzero at T_A, the field-driven DW mobility is found to be remarkably enhanced. The collective coordinate approach generalized for ferrimagnets and atomistic spin model simulations show that this remarkable enhancement is a consequence of antiferromagnetic spin dynamics at T_A. We also discuss our recent findings about the spin wave dynamics across the compensation points of ferrimagnets. Our finding highlights the importance of tuning of the compensation points of ferrimagnets, which could be a key towards ferrimagnetic spintronics [1- 5].

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