

## 2<sup>nd</sup> Transnational Round Table on Magnonics, High-Frequency Spintronics, and Ultrafast Magnetism

### Bimerons and Antibimerons in Magnetic Topological Materials

Oleg A. Tretiakov<sup>a</sup>

*a: School of Physics, University of New South Wales, Sydney, Australia*

I will discuss topological magnetic textures, such as skyrmions, half-skyrmions (merons), and bimerons, which constitute tiny whirls in the magnetic order. They are promising candidates as information carriers for next generation electronics, as they can be efficiently propelled at very high velocities employing current-induced spin torques [1]. First, I will talk about bimerons [2] and antibimerons [3] in ferromagnetic systems coupled to heavy metals and topological materials. Then I will show that antiferromagnets can also host a variety of these textures, which have gained significant attention because of their potential for terahertz dynamics, deflection free motion [4], and improved size scaling due to the absence of stray fields. Finally, I will demonstrate that topological spin textures, merons and antimerons, can be generated at room temperature and reversibly moved using electrical pulses in thin film CuMnAs, a semimetallic antiferromagnet that is a test-bed system for spintronic applications [5].

#### References:

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