We have theoretically studied the impact of thermal fluctuations on electrical conduction in antiferromagnetic semimetals (AFS):

- Depending on the orientation of the magnetization, AFS may either be gapped or gapless.

- We find that the thermal fluctuations effectively decrease the magnitude of the magnetic order that makes it difficult to distinguish the two phases, as shown to the left where we plot the transmission against the fluctuation angle.

- At higher temperatures, the spins in the AFS randomly tilt making sections of the AFS appear gapless, as shown to the right where we plot the local density of states and see states in the AFS where there should be none.

Conclusion: Thermal effects will play a large role in understanding antiferromagnetic materials