Dielectric constant of κ(BEDT−TTF)$_2$Cu$_2$(CN)$_3$

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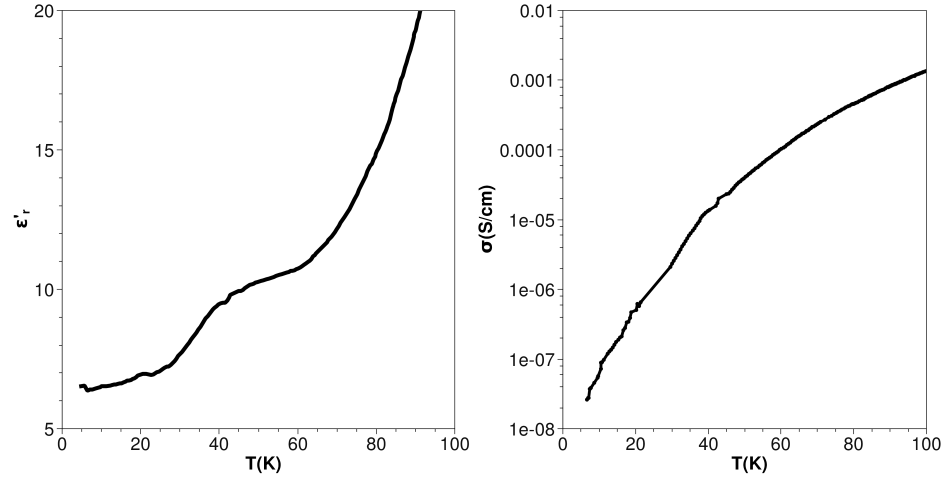
We have measured the temperature and frequency dependence of the dielectric constant of κ(BEDT−TTF)$_2$Cu$_2$(CN)$_3$. We find that above 100K, the temperature dependence of the dielectric constant scales well with the conductivity. However below this temperature, both quantities are found to behave differently. Most notable of differences is the presence in the dielectric constant of an anomalous hump centered around 50K. Discussion of this anomaly and its relation to the spin-liquid state will be made.



(Left) Temperature dependence of the real part of the dielectric constant of κ(BEDT−TTF)$_2$Cu$_2$(CN)$_3$ at 2MHz.. (Right) Temperature dependence of the conductivity of the same compound.

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