

# An Expansion to the Thermo-dielectric Effect Concerning Stellar Weather

Jeffrey J. Wolynski  
Jeffrey.wolynski@yahoo.com  
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Cocoa, FL 32922

**Abstract:** The discoverer of the thermo-dielectric effect, Joaquim da Costa Ribeiro, found that matter when undergoing a phase transition produces charge separation and electric current. This discovery was applied to solid to liquid phase transitions. In this paper it will be reasoned that charge separation and electric current can also occur in other phase transitions as well, and is a central concept to stellar evolution.

In stellar metamorphosis, all astrons (young ones called stars and old ones called planets/exoplanets) experience a wide range of phase transitions. It can be reasoned that if phase transitioning from solid to liquid and liquid to solid produces electrical current and charge separation, then other types of phase transitioning should also produce electrical current and charge separation. This means that electrical current and charge separation are produced in very large quantities on all astrons as they evolve and experience all enthalpies of phase transitioning, including but not limited to plasma recombination, ionization, condensation, evaporation, sublimation, deposition, solidification, melting, etc. It also should be noted that ionization itself is a type of charge separation, so increasing the enthalpy of a substance is probably where the charge separation occurs, as in sublimation, vaporization and melting. When the charge recombines it releases heat.

