# 🔻 BSL Reference Summary

This document provides bibliographic and conceptual references supporting the theoretical framework of the Braun–Stanley Layer, an open-source field-preserving rectifying junction.

## 1. Ferdinand Braun: Historical Foundation

Karl Ferdinand Braun (1850–1918) was a German physicist who discovered the rectifying behavior of metal–semiconductor junctions in 1874. Using natural minerals such as galena and copper sulfide, Braun identified asymmetric conduction at point contacts, laying the groundwork for the diode and later transistor development. His insight into solid-state unidirectional conduction forms the conceptual root of the Braun–Stanley Layer.

## 2. C. P. Steinmetz: Field Theory & Displacement Continuity

Charles Proteus Steinmetz (1865–1923) authored foundational works in alternating current theory, transient phenomena, and electric discharge behavior. His emphasis on vectorial electric fields, non-conduction modes of energy storage, and time-dependent inductive phenomena align closely with the principles underpinning the Braun–Stanley Layer's field preservation behavior.

## 3. Reference Texts

The following works are referenced in support of BSL theory:

• Steinmetz, C. P. (1911). Electric Discharges, Waves and Impulses. McGraw-Hill Book Co.  
 📎 Local copy: docs/references/Steinmetz\_Electric\_Discharges\_Waves\_Impulses.pdf

• Steinmetz, C. P. (1901). Theory and Calculation of Transient Electric Phenomena. McGraw Publishing Co.  
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## 4. Inductor Behavior: BSL vs Traditional Rectification

Traditional diodes inserted into coil geometries break field symmetry by introducing abrupt conduction-only paths. This disrupts capacitive continuity and may increase transverse losses or unintended resonant detuning.  
  
In contrast, the Braun–Stanley Layer preserves displacement field continuity, allowing inductive windings to maintain longitudinal field integrity while still enforcing directional conduction. This is expected to improve Q factor, reduce parasitic discharge paths, and enhance field-stacking behavior in high-impedance or asymmetric systems.

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