



Contribution ID: 15

Type: **not specified**

## Logical Interpretation of Pierre Curie's Paper on Symmetries (1894)

*Wednesday, 6 September 2023 11:25 (20 minutes)*

Curie's 1894 paper is examined on the basis of the recent discovery of a theoretical organization which is alternative to the deductive-axiomatic one. In agreement with it, the text presents many doubly negated propositions that belong to intuitionist logic, including its celebrated "propositions"; which therefore are recognized as heuristic in nature, not axioms. A rational re-construction of Curie's paper according to a new model of theoretical organization shows new aspects of his theory, i.e. ad absurdum proofs and the application of the principle of sufficient reason. However, maybe because wanting to present the subject at a theoretical level comparable with that of the dominant Newtonian paradigm, Curie appealed to the metaphysics of "causes" and hence to a deductive theory. Ultimately, Curie's paper results to be a mixture of characteristic elements of both kinds of theoretical organizations, because he was obliged by the subject to argue in a heuristic way. In conclusion, the paper shows that symmetry is a mathematical technique which is to be merged within the specific theoretical organization based on a problem, leading to a final predicate which has to be subjected to two constraints (indirectly suggested by Markov).

**Primary author:** DRAGO, Antonino (Dept. Physical Sciences, University Federico II Naples)

**Presenter:** DRAGO, Antonino (Dept. Physical Sciences, University Federico II Naples)

**Session Classification:** Da Poleni a B. Rossi e oltre / From Poleni to B. Rossi, and Beyond: History and epistemology of physics

**Track Classification:** SISFA 2023