

A view from the height.

The contribution of Nobel laureate Paul Lauterbur to the evolution of MRI research area

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In this research, we take Nobel prizes as signaling novelty, and we study the process of its emergence. Our framework builds on the idea of novelty, as the result of the coevolution of socio and semantic spaces analyzed through network analysis and triangulated with qualitative data. Within science, we refer to novelty as a new scientific research area that results from the dynamic interaction between the generation of new scientific knowledge (concepts that, as nodes in a semantic network of knowledge, enter or recombine), and new scientific relationships (authors that, as nodes in a scientific network of collaborations, enter or recombine in new co-authorships).

In this perspective, we study the evolution of the MRI research area through the experience of one of the main contributors, the Nobel laureate Paul Lauterbur. We take the prestigious award as a signal of the innovativeness of the idea and of the centrality of his work for the field. We use this to travel from the micro analysis of the single contributor to the macro perspective of the broader level of the research area. We map collaborators, affiliations, disciplines, personal professional history (affiliation changes, business relations), research interests and scientific contribution of the protagonist. This implies that we map the evolution of the research area through his experience. We pair this with some pictures of the research area as a whole, through a semantic analysis of the evolution of the network of MeSH terms.

Despite the common ideology of the individual as crucial actor in innovation processes as well as in scientific discovery, in this research we do not buy the winner's story nor we celebrate the one man innovator's glory. Conversely, we acknowledge the prominent role of other actors for the development for MRI and of other dynamics in the institution of the MRI field à la Scott. As a matter of fact, we use the Nobel Laureate as a framework to capture trends and patterns that would have been visible only after the field was completely developed, by observing the triggers and the reflections of their emergence in the Nobel prize winner's experience. On the one hand, we ride obvious limitations deriving from the fact that we focus on just one element of the whole picture of the emergence of a field. On the other hand, by restricting attention on one, and one who among the first to provide crucial advancements of what was not yet a field, we are able to observe novelty while coming into being.