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Fusing Europe from EURATOM to ITER: A network analysis of European techno-scientific cooperation in controlled thermonuclear research

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Scholars and policymakers consider techno-scientific cooperation as central in the process of European integration. However, few historical cases have explored this role in detail. In particular, the role of cooperation on fusion energy research remains largely unexplored, apart some preliminary studies suggesting that it had played a major role in some key moments of European integration. In the context of the project FusEurope: European cooperation in nuclear fusion research: from history to future policy design—which aims at addressing this shortcoming from an interdisciplinary perspective—the talk discusses the change over time of technoscientific cooperation in fusion research in Europe against the background of global developments by applying concepts and tools of network analysis. In different European countries, scientific research that would flow into controlled fusion research was initiated under various circumstances depending on the political conditions of the immediate post-World War II period. Different research streams research, often related to domains apparently unconnected to nuclear matters—notably, on astrophysical plasma—provided both expertise and knowledge essential to produce advances in controlled thermonuclear research. Using information available in reports, published literature, and archival materials the talk will produce a temporal social network analysis of techno-scientific cooperation on topics related to fusion research, identifying particularly central scientists, subcommunities and topics. By understanding the relations between persons and knowledge across national borders we aim to clarify in what specific ways fusion research became progressively international in the European context.

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