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Which Subfield of Physics is More Influential?

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In this talk, I will try to answer two questions about physics: First, how important is each subfield and second, how does a specific subfield influence other subfields? We modify the well-known open-system Leontief Input-Output Analysis in economics into a closed-system analysis focusing on eigenvalues and eigenvectors and the effects of removing one subfield. We apply this method to the subfields of physics. This analysis has yielded some promising results for identifying important subfields (for example the field of statistical physics has large influence while it is not among the largest subfields) and describing their influences on each other (for example the subfield of mechanical control of atoms is not among the largest subfields cited by quantum mechanics, but our analysis suggests that these fields are strongly connected). This method is potentially applicable to more general systems that have input-output relations among their elements.

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