

Evolving Landscape of Nuclear Physics Publications

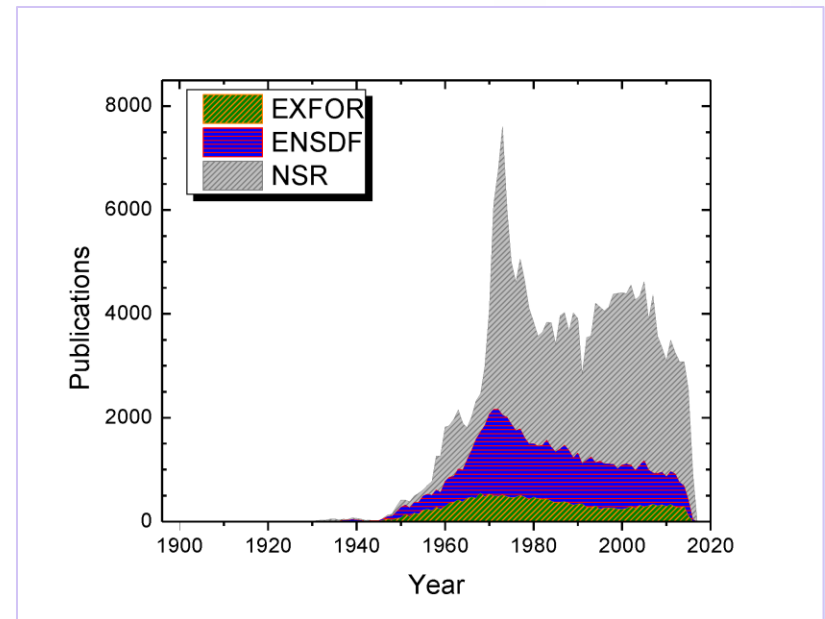
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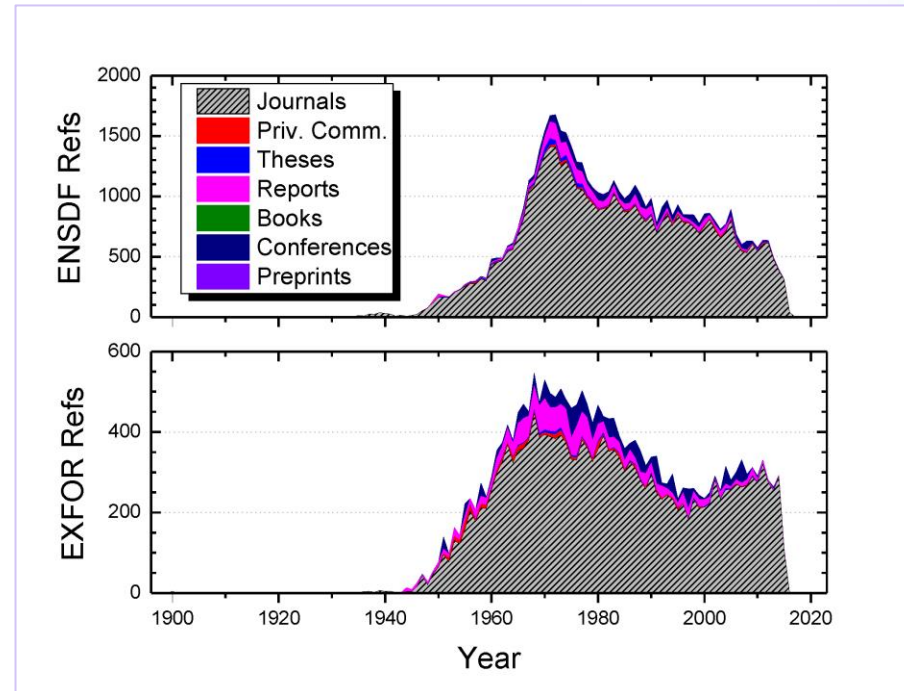
Nuclear Bibliography

- Why NSDD and NRDC care about bibliography such as NSR: 220,000+ references.
- ENSDF & EXFOR projects rely heavily on bibliography: 55,000+ and 22,000+ references, respectively.
- How many references we have to compile and scan?
- Out of 3,100+ /year compiled NSR references we use less than 1,000 /year in ENSDF and EXFOR: ~600 in ENSDF and ~300 new publications in EXFOR.



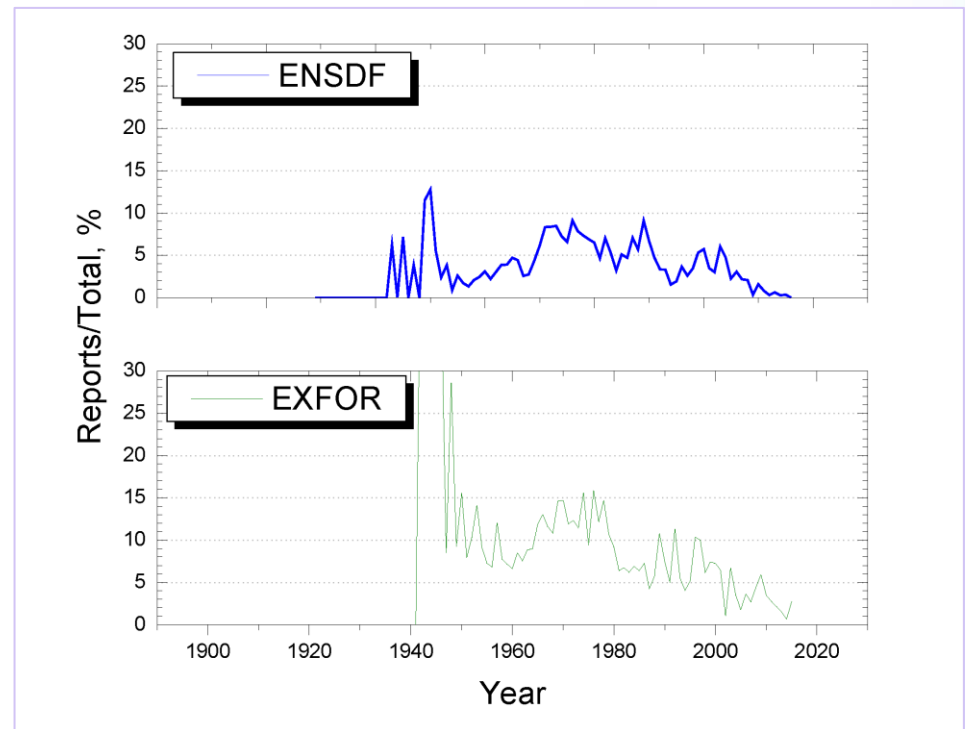
Reference Type Code: CODEN

- Originally results have been published mostly in journals.
- Over the years, the overall volume of research exceeded the journal capacities and many unique results have been published as laboratory reports or conference proceedings.
- Later the volume of nuclear physics research has dwindled while the latest computer technologies have helped to increase the journal volumes.
- Presently, journals could accommodate almost all major findings.



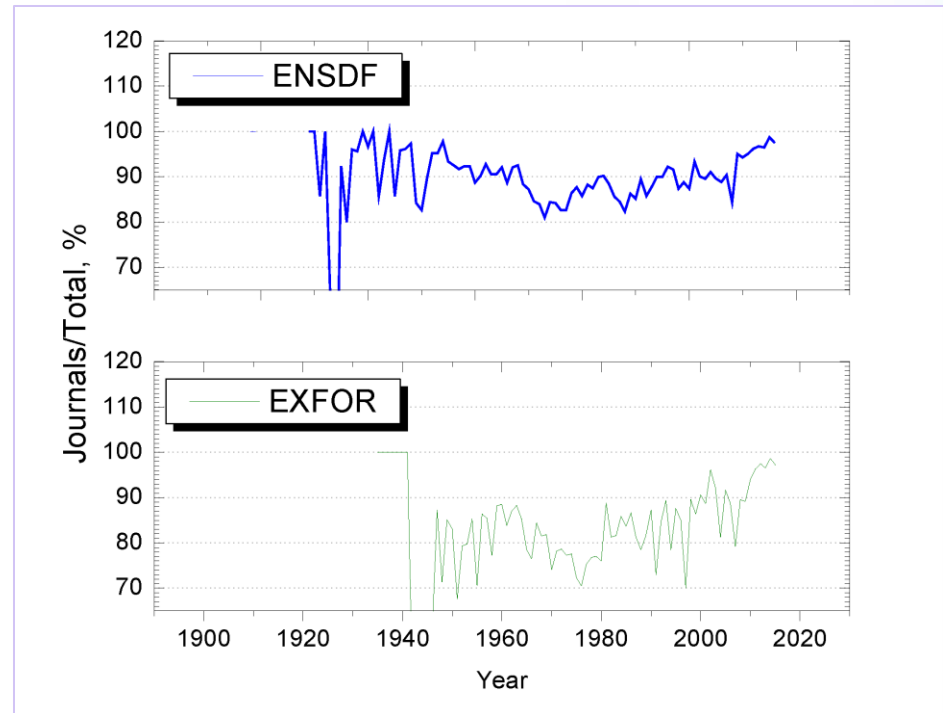
Unique Contents: Laboratory Reports

- Fractional contribution of laboratory reports to ENSDF and EXFOR databases provides a powerful testimony to the impact of typewriter-style publications.
- These reports played a major role in the XXth century as the final destination for new results and lost this function nowadays in favor of other dissemination tools.



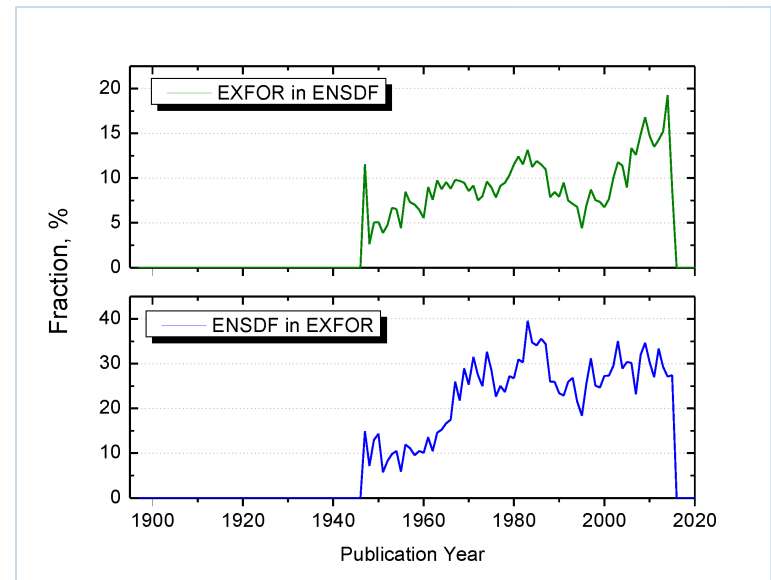
Unique Contents: Journals

- Initially, the large volume nuclear reaction data sets (EXFOR database) could not be accommodated by journal publications.
- Later, the computer and Web dissemination technologies have evolved and adapted to large volumes of data that are presently published as supplementary Web files.
- Today, almost everything is published in journals.



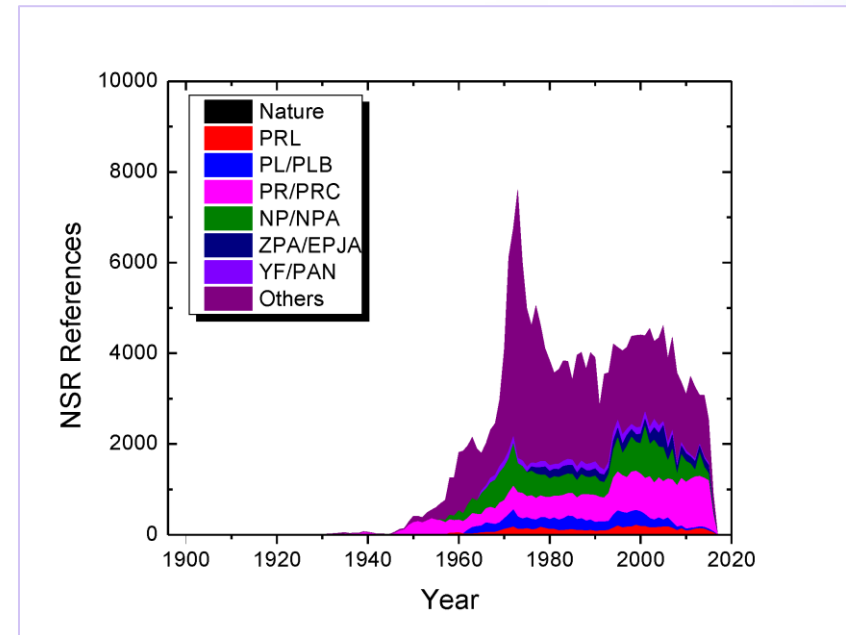
Overlap Between EXFOR and ENSDF

- Validation of database analyses: Do we have an overlap in between ENSDF and EXFOR?
- The ~10-15 % of EXFOR content in ENSDF and ~25-30% of ENSDF content in EXFOR database reflect 22K vs. 55K references in EXFOR and ENSDF, respectively.
- Nuclear structure and reaction quantities are not always have been published in the same papers. Most likely we deal with different experiments.



NSR Journals: Fractional Distribution

- Journals are primary, all others are secondary references in NSR.
- Today, NSR compilation effort is dominated by journals.
- Presently, many scientific institution laboratory reports and conference proceedings are preliminary in nature and very incomplete.
- Seven major nuclear physics journals in NSR.



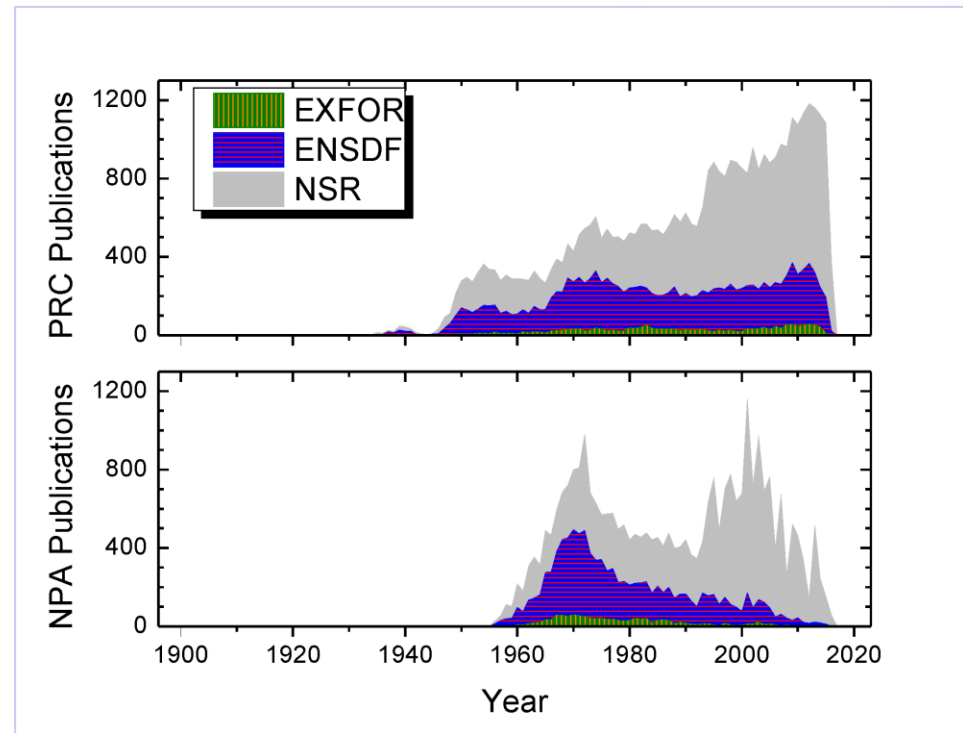
Seven Major Journals Rankings

- Rankings of seven major nuclear physics journals.
- SCImago journal rank: measuring journals' scientific prestige .
- H index and citations.

Title	SCImago Journal Rank (SJR)	H index	Cites / Doc. (2years)	Country
Nature Physics	13.664	157	14.78	United Kingdom
Physical Review Letters (PRL)	4.402	452	6.71	United States
Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics (PL/PLB)	3.2	208	5.5	Netherlands
Physical Review C - Nuclear Physics (PR/PRC)	2.14	152	3.36	United States
Nuclear Physics A (NP/NPA)	1.224	126	1.78	Netherlands
European Physical Journal A (ZPA/EPJA)	0.821	67	1.16	United States
Physics of Atomic Nuclei (YF/PAN)	0.432	30	0.49	Russian Federation

PRC & NPA Analysis

- Experimental results do not represent the majority of the journal contents recently.
- The absolute value of experimental contents in PRC has not changed for the last 50 years, while Nuclear Physics A is losing its experimental articles rapidly and this journal scope effectively changes.
- Journals grow by increasing the overall number of published articles over the years thanks to the latest computer technologies.



Conclusions

- Presently we have many journals, large volumes, latest computer technologies for data storage, Web dissemination of supplementary files...
- The value of secondary publications (laboratory reports, conference proceedings, ...) for unique results is very low in the last five years.
- Many lab reports and conference proceedings are essentially dead, while private communications would keep their value.
- If these trends will continue we can find ourselves in a situation when we would compile journal articles only.
- ENSDF and EXFOR databases only partially overlap and show identical trends in unique results publishing process.
- Nuclear publication process has evolved over the years.