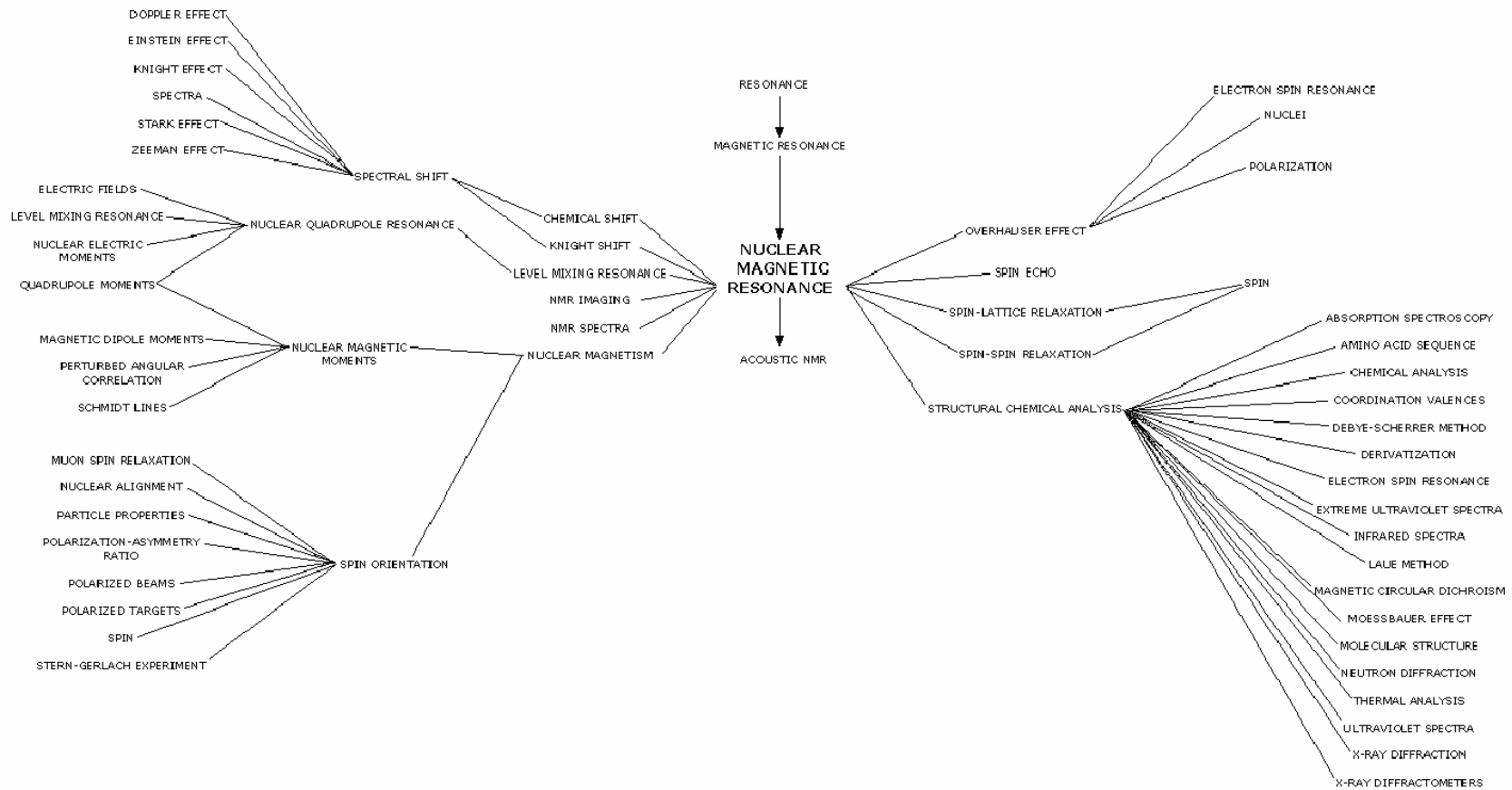
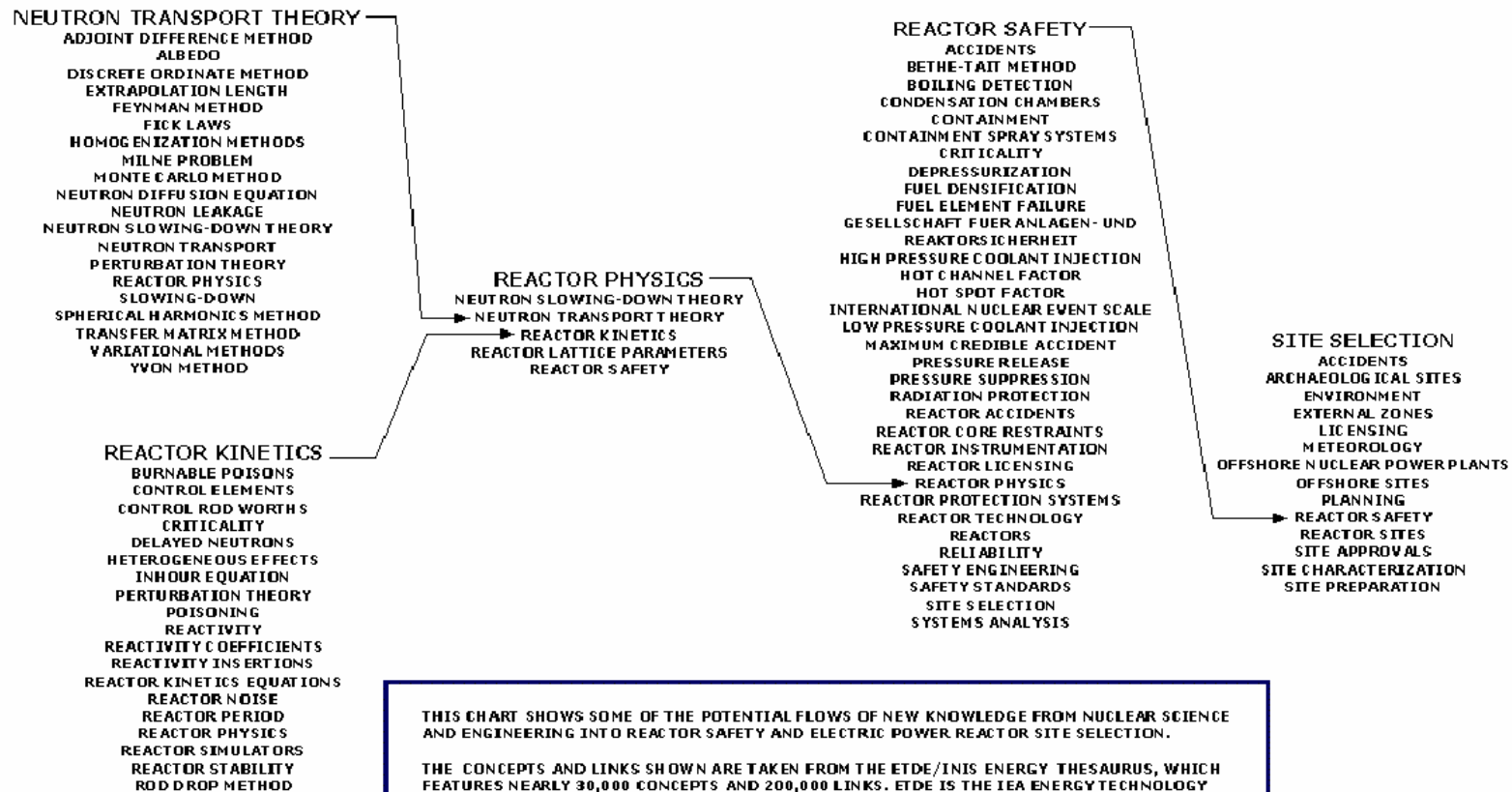


A SAMPLE WORD WEB FAMILY FOR
NUCLEAR MAGNETIC RESONANCE

DRAFT - 1/14/04



**FROM NEUTRONS TO
NUCLEAR POWER**
SHARED KNOWLEDGE ENABLES PROGRESS



THIS CHART SHOWS SOME OF THE POTENTIAL FLOWS OF NEW KNOWLEDGE FROM NUCLEAR SCIENCE AND ENGINEERING INTO REACTOR SAFETY AND ELECTRIC POWER REACTOR SITE SELECTION.

THE CONCEPTS AND LINKS SHOWN ARE TAKEN FROM THE ETDE/INIS ENERGY THESAURUS, WHICH FEATURES NEARLY 30,000 CONCEPTS AND 200,000 LINKS. ETDE IS THE IEA ENERGY TECHNOLOGY DATA EXCHANGE AND INIS IS THE IAEA INTERNATIONAL NUCLEAR INFORMATION SYSTEM.

THE DOE OFFICE OF SCIENTIFIC AND TECHNICAL INFORMATION IS U.S. AGENT FOR BOTH EXCHANGES. SEE [HTTP://WWW.OSTI.GOV](http://www.osti.gov). FOR MORE INFORMATION ON THE CHART CONTACT DR. DAVID WOJICK -- WOJICK@OSTI.GOV

From Neutrons to Nuclear Power: shared knowledge enables progress.

The chart entitled “From Neutrons to Nuclear Power: shared knowledge enables progress” is an experimental analysis. The chart shows some of the potential flows of new knowledge from nuclear science and engineering into reactor safety and power reactor site selection. It is intended to help the members of these diverse communities to understand one another’s concepts.

The information presented on the chart is derived from a unique document – the International Energy Subject Thesaurus. Despite its title, this document is far more than an ordinary thesaurus. It includes detailed analysis of families of energy related concepts. These families of concepts, and the links between them, define patterns of thought that go into energy science and technology research. Research communities use these concept families, and to some degree the communities are grouped around the concepts.

The chart presents several concept families taken from the Energy Subject Thesaurus, together with important links between them. The families are represented by lists of words associated with Neutron Transport Theory, Reactor Kinetics, Reactor Physics, Reactor Safety, and Site Selection (for nuclear power plants). It should be noted that there is almost no overlap between these lists, which suggests that the research areas are genuinely distinct.

The links, designated by arrows, indicate potential paths whereby research results might flow from one research community to another. For example, developments in neutron transport theory might lead to new concepts in reactor physics, resulting in improvements in reactor safety technology, which in turn facilitate progress in nuclear power plant site selection. Generally speaking this particular flow is from science to technology, but there are many potential flows within science and within technology as well. The point of the Thesaurus links is that related communities speak related languages.

The entire International Energy Subject Thesaurus contains almost 30,000 concept terms and nearly 200,000 links. The Thesaurus has been in continuous development over the last 30 years by the IEA Energy Technology Data Exchange (ETDE) and the IAEA International Nuclear Information System (INIS). It is available at (<http://www.etde.org/edb/etdesuth.pdf>).

Since these concepts are key terms used in research, they are useful for searching the research literature. Much of the literature is found online in the vast collections of the DOE Office of Scientific and Technical Information (<http://www.osti.gov>).

For more information contact Dr. David Wojick -- WojickD@osti.gov