

INTRODUCTORY REMARKS

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Superconductivity was discovered in the same year as the nucleus - 1911. I remember it well because I was born in the same year. Strangely, technology based on superconductivity is just coming to fruition, more than twenty years behind nuclear technology. This can probably be ascribed to the fact that superconductors for high fields were not discovered until a few years ago. The magic element is niobium, an element which has a single stable isotope, Nb⁹³. Nuclear physicists have shown that it is just stable, but not by very much. The next odd Z element, technetium, did not quite make it, otherwise it would strongly compete with niobium. The interrelation of all physics progress is illustrated by the fact that the theory of superconductivity due to Bardeen, Cooper and Schrieffer has application also to the understanding of nuclei. The technology of dc superconducting magnets has been successfully developed for a number of years and you can see many examples of it here and elsewhere. I hope you will have a chance to see the new 7-ft bubble chamber test facility which has a very large superconducting magnet. Here at Brookhaven we have an important cooperative effort in superconductivity which involves the Accelerator, Nuclear Engineering, and Physics Departments. The big hope, especially of high energy physicists, is to build high field ac superconductors which will permit relatively cheap and relatively small, extremely high energy machines. Your Summer Study may prove to be an important contribution to this end. I wish you luck.