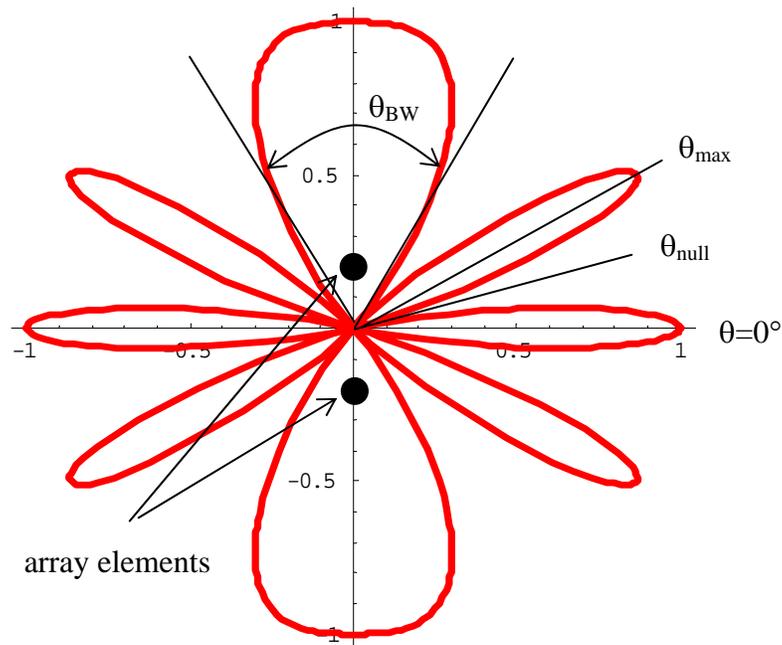


Underwater Acoustics and Sonar

SP411 Handouts and Notes

Fall 2006

Beam Pattern Function
($\lambda/d = 0.5$)



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Acknowledgement

These notes for Underwater Acoustics and Sonar (SP411) are provided to you not because of an overwhelming concern for your book buying budget, but do to the reality that the market simply does not have a major demand for an undergraduate textbook in underwater acoustics and sonar. As such, no satisfactory textbook is available and we have to write our own material.

These notes have been passed down for many years. Naval Academy legend says the first set was written by Emeritus Professor Jack Smithson. I first saw them in the late eighties while teaching Physics as a young submarine Lieutenant. Fellow Lieutenant, Mike Smith, '79, gave me a copy and tried to persuade me to teach the course for him.

Since then, much material that was previously considered classified and therefore not included in the course has been added. I suppose in a perverse way, the infamous traitor Navy Warrant Officer John Walker takes the credit for this. For personal gain, he sold the secrets of what we could do with narrow band sonar to the Soviet Union. May he long rot in jail. I'm surprised how few Midshipmen know of his treachery. At the very least you can hate him because he has made this course more challenging than it used to be. Then learn his story and hate him for the lives he put at risk with his unconscionable acts.

I need to credit LCDR Brent Flaskerud for the first modern version of these notes, transcribed into neat MS Word files. Brent did a yeomen's service to bring the course into the new millennium. LCDR Tom Callender added and revised the material as well.

Professor Murray Korman actually had a preliminary version of these notes published by the Naval Institute Press in 1995. He wrote most all of the homework problems. He is the master of the SP411 course and has shepherded it for several decades. He is the designer of most of the hands-on classroom demonstrations you will see this semester. I am grateful for all he does to keep this course interesting and vibrant.

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