

The Improbable Inventor - Hedy Lamar

One requirement for any National Science Foundation research is the usual requirement that the Principal Investigator digs out any 'prior art' for what he is researching. During my research I encountered a US Patent that was co-authored by the 1940s Actress (called the most beautiful woman in the world) Hedy Lamar. She in fact spawned the idea of 'frequency hopping' radios in 1941 - as means for the Navy to guide torpedos by radio in a way that could not be intercepted or jammed.

Since I was aware of her from the time I was 13 years old in the 1940s I was struck by the inscapable facts of that US Patent and her role in it, which led to modern unlicenced and substantially secure wireless communications - such as Blue Tooth, CDMA wireless telephone connections, and more recent Wi-Fi Internet Connectivity. So I nominated her in 1996 for the Electronic Pioneer Award of the Electronic Frontier Foundation. She not only got it, she was awarded, in Austria - her birthplace - the prestigious "Kaplan Award" from the Austrian Academy of Sciences while she was living at 83.

A great deal of publicity followed my nomination - even a series of articles, books and movies have been issued on her and George Anteil's story and patent - several of which are new in 2012.

Here is a look at a portion of US Patent # 2,292,387

<http://wireless.oldcolo.com/course/hedy.htm>

There was some dispute whether her Patent was ever 'reduced to practice' by the US Navy. As far as for guiding torpedoes in WWII, it was not. But after I got Hedy Lamarr world publicity by successfully nominating her for the Electronic Frontier Foundation Award - which she got in 1997 - a one-time (1950s) private Contractor for the Navy saw her award, emailed me to show that he designed, for the Navy, a sobabouy system to permit secure wireless communications to travel between a microphone (for detecting submarines) and a passing Naval plane. He based it on her frequency hopping patent of 1942.

My Scientific American Article

In April 1998 I was asked by prestigious Scientific American to write a piece that explains Frequency Hopping still very much used (Blue Tooth wireless is a frequency hopping radio, and field scientists prefer it because it penetrates vegetation and walls far better than Wi-Fi) and how it Differs from Direct Sequence, the basis of Wi-Fi. I co-authored the piece with

Dewayne Hendricks with whom I worked as the Principal Investigator of the entire 7 year NSF wireless projects. They also wanted the Hedy Lamar story. Here it is as a 3 page PDF file.

[My Scientific American Article on Spread Spectrum and Hedy Lamar](#)

The Biological Science Projects

After I proved out the values of unlicensed "Wireless for Education" under a \$450,000 NSF grant in the early 1990s, I was awarded another \$1,500,000 to apply what I had learned to a series of Biological Science Data Collection Projects which were in remote places, and presented many new challenges.

They included collecting Scientific data in the Rain Forests of Puerto Rico, out on the lakes of Northern Wisconsin, in the cold climates of remote central Alaska, and a final series on data collection on the deserts and mesas of Southern New Mexico.

If you go to this URL you can read 54 illustrated reports, ending with overall Findings, and implications for Regulators of Wireless, especially the FCC.

<http://wireless.oldcolo.com/biology/progressreports.htm>