

# Popular Science Covers Cold Fusion

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The November 2012 *Popular Science* “The Future Now” cover includes “Cold Fusion: A Special Investigation.” The story by Steve Featherstone, “Andrea Rossi’s Black Box,” focuses on the tumultuous past few years of effort and setbacks by Italian inventor Andrea Rossi. Those familiar with the Rossi story might expect the story to be entirely negative toward the cold fusion field. However, Featherstone seems to be an eager, open-minded journalist who wants to dig into the layers of a story.

Rossi seemingly burst onto the cold fusion/LENR scene in 2010. His affiliation with Sergio Focardi made many scientists in the field take notice. His first public demonstration of the energy catalyzer (E-Cat) took place in January 2011 in Bologna, Italy. The internet immediately exploded with E-Cat enthusiasm and cold fusion began experiencing a surge in interest. Meanwhile, those closest to the field began a lengthy journey of discovery to ascertain whether Rossi’s claims were real and whether the work would catapult the field into a new era of research, investment, development and acceptance.

Many were aware of Rossi’s tarnished past, which included an environmental nightmare created by attempting to transform garbage and industrial waste into oil and an eventual acquittal on gold trafficking charges. This history may have concerned some in the field, but Rossi was given attention because his LENR claims seemed valid and intriguing, especially in the context of past work done by Focardi and Francesco Piantelli.

Since January 2011, Rossi’s behavior has clouded the hope that the E-Cat can become a successful LENR technology. He has had falling outs with most of the individuals and companies he has worked with, while at the same time posting inconsistent, unverifiable and sometimes false content on the internet and via email. When Featherstone attended the International Low Energy Nuclear Reactions Symposium in Williamsburg, Virginia this summer, he spoke to many of the leading LENR researchers and “couldn’t find a single person willing to call Rossi a con man.” He wrote, “The consensus was that he had something, even if he didn’t understand why it worked or how to control it.” Jed Rothwell, director of lenr-canr.org, is not surprised by the field’s response to Rossi’s claims or behavior. He said, “It is no great leap for the people at that conference to accept that Rossi is probably right. It is no big deal. Just

about everyone at that conference has seen the cold fusion effect first-hand, including me. We have no doubt at all that cold fusion itself is real. We also think it is likely the Ni-H version works. A lot of us (including me) respect Piantelli and Focardi. Based on that, it is reasonable to conclude that Rossi’s claims are probably true. His tests have been ludicrous as everyone knows, but convincing nonetheless.” Many in the field have proposed better protocols to Rossi, directly and indirectly, including how to make proper measurements and how to protect intellectual property while doing open demonstrations. Most believe that Rossi is not trying to scam the public, rather that he suffers from “inventor’s disease,” which has the awful “side effects” of paranoia and disillusionment.

Rossi’s questionable behavior carried over to July 2012 when Featherstone touched down in Italy. He had been invited by Rossi to a private demonstration of the E-Cat.

Most researchers in the field would be honored to have a reporter interested in their work, but could of course be hesitant due to the unfair treatment the field has received in the press over the years. Featherstone was shocked with Rossi’s lack of courtesy and business acumen—he was left to navigate himself around a foreign city, and when arriving at his hotel, found a new email from Rossi cancelling the meeting. After venturing out to Rossi’s business, being turned away and an evening of emails back and forth, Featherstone was once again granted access to see the E-Cat and conduct an interview.

Featherstone is skeptical about what he saw—an E-Cat module with three stainless steel reaction chambers containing 100 grams of nickel powder, a small amount of hydrogen gas and Rossi’s catalyst. Featherstone

wrote, “The E-Cat is essentially a boiler, but the mechanism that drives it is as mysterious as the warp core on the Starship *Enterprise*.” He wrote about one valid critique: “The module was plugged into the wall. Critics have slammed him for not unplugging it during live demonstrations...Some even suggested that Rossi juiced the E-Cat through hidden wires.” During Featherstone’s visit, Rossi “circled the table, methodically clamping a handheld ammeter around every wire.” The display showed 0 amperes on every wire; then Rossi unplugged the module. Featherstone concluded, “It’s impossible to say what produced the heat [140°C peak, with



module unplugged, for about an hour]. Even if Rossi was showing me an accurate calorimeter reading, it wouldn't be enough to conclude that his machine contained a nuclear reaction." After the initial problems Featherstone faced with Rossi, he ultimately was given unprecedented access to Rossi's lab and E-Cats for taking photos.

Featherstone is less skeptical about the possibilities that LENR holds. It appears that he did a great deal of research and spoke to a number of people in the field. The story accurately portrays how some work produces excess heat, neutron fluxes, alpha particles, transmutation and other signatures of nuclear activity. Saying that the field has an "identity crisis" seems to minimize the issues facing the field, but in a sense is true. Featherstone wrote, "The field has more aliases than P. Diddy," referring to the many names being used for the field (LENR, CANR, CMNS, etc.). He highlights the pertinent issue of theory when he writes that the "identity crisis stems from the simple fact that cold fusion researchers don't understand how these reactions work." A sidebar on theory describes the Fleischmann-Pons effect, Hagelstein's phonon theory and Widom-Larsen's theory.

Since the story focused on Rossi's claims, Featherstone sought out skeptics in Italy, including Ugo Bardi (who attempted, but failed, to replicate the Fleischmann-Pons effect while at Lawrence Berkeley National Lab in 1989). Two other skeptics, Giancarlo Ruocco (Director of Physics, University of Rome) and Antonio Polosa (Associate Professor) were so indignant with their responses that it almost seems to have convinced Featherstone to be skeptical about skeptics. When Featherstone referred to LENR scientists, Ruocco took offense. He insisted that cold fusion researchers should not be referred to as scientists, rather that they are mostly "garage research men" and Polosa seconded this by calling into question "the quality of the people." Clearly neither skeptic had read any of the thousands of cold fusion papers, and both were unaware of the esteemed careers of most in the field.

When Featherstone received test data from Rossi after returning from his visit, he sent the report (with identifying information removed) to an expert at NASA experienced in conducting third-party validation tests. He wrote, "While the NASA expert didn't entirely refute the report's findings, the test protocols and conclusions didn't meet the standards of a credible third-party evaluation." Featherstone admitted, "The outcome wasn't surprising, but I was disappointed nonetheless. Some small part of me wanted Rossi to prove my suspicions wrong."

A redeeming part of the story for the field is near the end of the ten-page story, where Featherstone recounts his meeting with physicist Francesco Celani and the NIWeek invitation to the field. His description of the courtesies extended to him by Celani presents an obvious dichotomy between the two very different Italian personalities. Featherstone was duly impressed that Celani detailed tests of his nickel-hydro-

gen cell in lab notebooks, including not only results but material preparation details. Celani was one of the first to see Rossi's E-Cat, attending the January 2011 demo with spectrometer in hand. Celani has successfully demonstrated his device twice in August, at NIWeek in Texas and ICCF17 in Korea. A number of Celani replications are currently underway, including at major U.S. national labs.

Whatever wrong turns Rossi may have taken (and it remains to be seen what comes of the E-Cat), it can be argued that the cold fusion field is in a better place at this time than it has been in years. Part of this can be credited to the attention that Rossi has brought to the field. Other possible devices and advancements have come to the forefront (including Celani's cell and Defkalion's Hyperion) as a result of Rossi's efforts.

Rossi's efforts have now not only garnered the interest of new energy enthusiasts online but serious journalists and mainstream media. Without the past two years of promotion by Rossi, it is very likely that *Popular Science* would not have done a cover story (or any print story, for that matter) on cold fusion, at least not until further advancements are made. The November 2012 issue



Andrea Rossi

of *Popular Science* is the first time since August 1993 that the magazine has had a cover story on cold fusion. The 1993 story, "It Ain't Over...Cold Fusion," by Jerry E. Bishop was generally positive. Fred Abatemarco, *Popular Science* editor in 1993, wrote in his editorial: "Despite the frustrations of believers and the claims of fraud by detractors, cold fusion research is gaining new support and funds...Bishop's report on the fact-or-fantasy debate over cold fusion should convince you that in science, as in baseball, it ain't over till it's over." In his editorial, current *Popular Science* editor Jacob Ward directs readers to Featherstone's profile of the "inventor and showman" who is Rossi. Ward notes, "It's a fascinating world, both because it promises something so spectacular, and because it tends to produce such fraudulence."

He would be hard-pressed to find many real cases of fraud in the cold fusion field (unlike, say, the new energy field).

Jim Dunn (Energy Technology Consultants), in a letter to *Popular Science*, encourages the magazine to continue to follow the field, focusing on the results of tests taking place around the world and "the impact that LENR technology could have upon the planet and our lives." We are hopeful that 2013 will bring with it many developments that will require the attention of not only mainstream media, but the government, entrepreneurs and scientists in general.

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