attempts because of my interest in deep-sea sediments and their ability to record polarity changes in Earth's magnetic field.[1] Alvarez's method at the University of California, Berkeley, was to take a sample of sediment and pass it through a circular solenoid; the current in the solenoid would have increased each time a monopole passed by. I do not believe Alvarez had any positive results.

Kolm was a staff member at the Francis Bitter National Magnet Laboratory at MIT, and his method was to move the sediment across a strong magnetic field,[2] which would cause a monopole to be dragged out from within a magnetic particle, pulled through the magnetic field, and then trapped in an emulsion. He received barrels full of sediment off a vessel from the Scripps Institution of Oceanography working in the Pacific Ocean and one from the University of Miami working in the Atlantic, but he saw nothing in them that was very promising. He then designed a magnetic rake to be towed behind a vessel and dragged through the sediment. The idea was to gather magnetic particles that might have collected monopoles and to sample a much greater volume of sediment than could be provided with barrel dredges. I do not believe he obtained any positive results.

References

1. C. G. A. Harrison, *J. Geophys. Res.* **71**, 3033 (1966).
2. H. H. Kolm, F. Villa, A. Odian, *Phys. Rev. D* **4**, 1285 (1971).

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▶ **Rajantie replies:** Alfred Goldhaber raises an interesting point that the radius of a magnetic monopole has to be larger than its Compton wavelength. As with the 't Hooft–Polyakov monopole, the nonzero size could be due to some new particles whose mass would have to be around 10–100 GeV for a TeV-scale monopole. So far the Large Hadron Collider (LHC) has produced no evidence of new particles beyond the standard model, but that does not necessarily rule out the existence of magnetic monopoles because we currently do not have a good enough theoretical understanding of the properties those particles would need to have.

The requirement for a finite monopole size is a consequence of the monopole's strong magnetic charge, and the electromagnetic duality means that the same conclusion would also apply to particles that have a strong electric charge. The strong charge means that the classical picture of a field around a static source may not apply, and hence the nonzero size could also be due to quantum mechanical effects without any new particles.

Our theoretical understanding of strongly coupled quantum field theories is limited, but lattice field theory simulations[1] show that in its simplest form, quantum electrodynamics allows relatively strong charges, although not as strong as the Dirac charge of a magnetic monopole. The maximum charge allowed for a magnetic monopole in the standard model without any new particles is an interesting and still open theoretical question.

Either way, the argument implies that if magnetic monopoles exist, they would have a nontrivial size and shape, which could be studied in future experiments.

Because of space limitations, I could not do justice to the wide range of fascinating ways people have been trying to find magnetic monopoles. Christopher Harrison and Ken Frankel highlight some of the pioneering attempts. Although those searches did not produce positive results, they paved the way for future experiments, and their method of using a SQUID (superconducting quantum interference device) to search for monopoles is still being used in the MoEDAL experiment at the LHC.

Reference

1. M. Baig, H. Fort, J. B. Kogut, S. Kim, *Phys. Rev. D* **51**, 5216 (1995).

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LIGO backstory delights and displeases

Robert Garisto tells us (Physics Today, August 2016, page 10) of the secrecy he maintained at *Physical Review Letters* prior to the announcement that a "chirp" had been detected at the Laser Interferometer Gravitational-Wave Observatory (LIGO). On sabbatical at Caltech, I had the pleasure of joining local astronomers to watch the press conference from the astronomy and astrophysics auditorium (whose street number, 1216, is the Lyman-alpha wavelength in angstroms). But as we left after the dazzling announcement, with music in our ears, they gave out coffee cups and bumper stickers each with the data already emblazoned on it. I should have hung out in the print shop days before!

Further, if I had a name that began with the letters Aa, I should have joined the LIGO collaboration, which published as "B. P. Abbot et al." with more than 1000 coauthors.[1]

Reference

1. B. P. Abbott et al. (LIGO scientific collaboration and Virgo collaboration), *Phys. Rev. Lett.* **116**, 061102 (2016).

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I was unpleasantly surprised by the tone of Robert Garisto's Commentary in the August 2016 issue. There are two principal reasons for my displeasure.

First, cheerleading of any form in scientific reporting is entirely inappropriate. It brings several issues into question. Were the referees preferentially chosen so as to guarantee a positive outcome? Was the discovery truly momentous? With regard to the second question, I doubt that many relativists would have thought that gravitational waves didn't exist. Entirely different is the truly momentous experimental observation of the Higgs particle, for example. The self-aggrandizing posture of the editor of *Physical Review Letters* would make us think that even he was a fully involved partner in the discovery.

Second, it's fine to use nicknames in private or in a group. But referring to Gabriela González as "Gaby" is, in a sense, demeaning to her, and it is inappropriate in a larger context. The practice is reminiscent of the overly enthusiastic reporting of the early space missions as if they were great athletic events, of early spaceflights, and of often unfortunate political postures—for example, refer-