

not be spread out because little bits of magnetic charge would violate the quantization condition. As Rajantie notes, there are models, such as the 't Hooft-Polyakov model,³ which give a very good classical-field approximation, in terms of $SU(2)$ gauge fields, for the interior structure of a monopole.

Another possible dynamic would be a confinement mechanism for fractional monopoles, analogous to quark confinement in quantum chromodynamics. Therefore, finding a monopole with mass of a few TeV would imply the existence of new objects on scales of several hundred GeV or less to account for the fact that the magnetic charge is spread out. At the moment, we have no evidence for such objects. Thus discovery of a monopole would motivate searches for new phenomena at lower energies, which in turn would require dramatic supplementation of the standard model.

References

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In the article by Arttu Rajantie on the search for magnetic monopoles, I noticed there was no mention of other monopole searches that had negative results. The most significant of those is the work by Luis Alvarez and his co-authors.^{1,2,3} The references to Rajantie's figure 4, the plot of monopole flux versus monopole mass, cite experiments by Alvarez and his colleagues. A description of the implications of their work would have been helpful.

References

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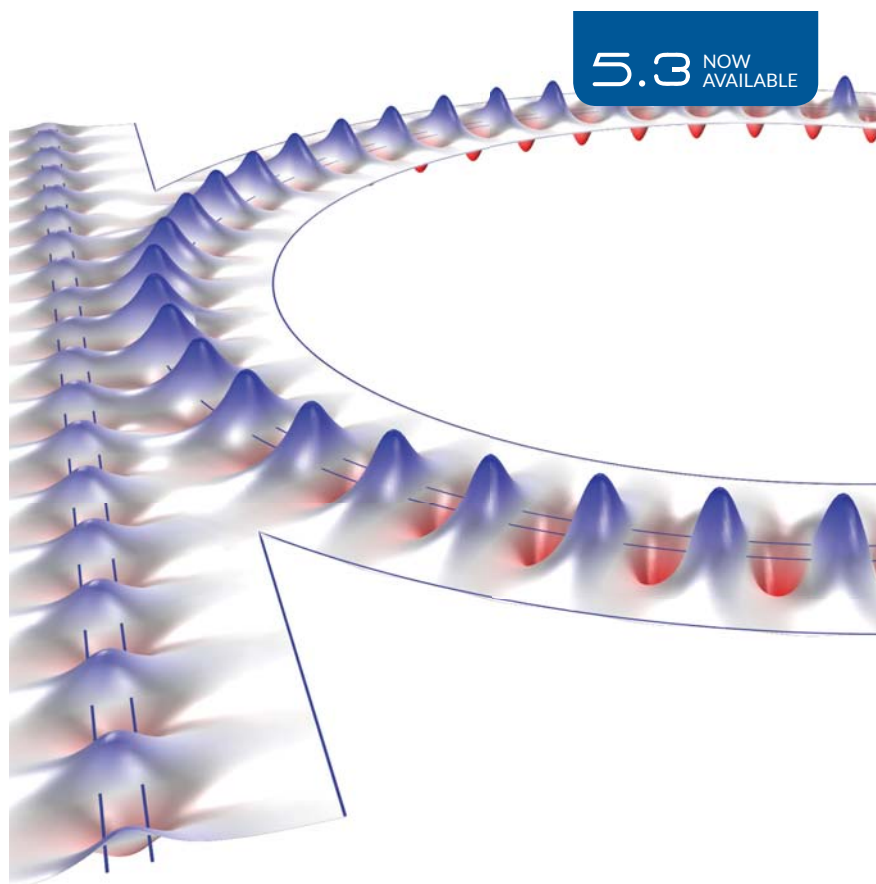
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The feature article by Arttu Rajantie describes the various hypotheses concerning the existence of magnetic monopoles and attempts to discover them. However, it did not cover some of

the earlier efforts—in particular, those by Henry Kolm and by Luis Alvarez. Both men thought that a search for magnetic monopoles in deep-sea sediments might be productive because in deeper parts of the oceans, the sedimentation rate is about 1 millimeter per millennium. With a constant supply of extraterrestrial material, the slow sedimentation rate would help in finding monopoles because they would be more concentrated than in other sediments.

I was involved in both of those



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