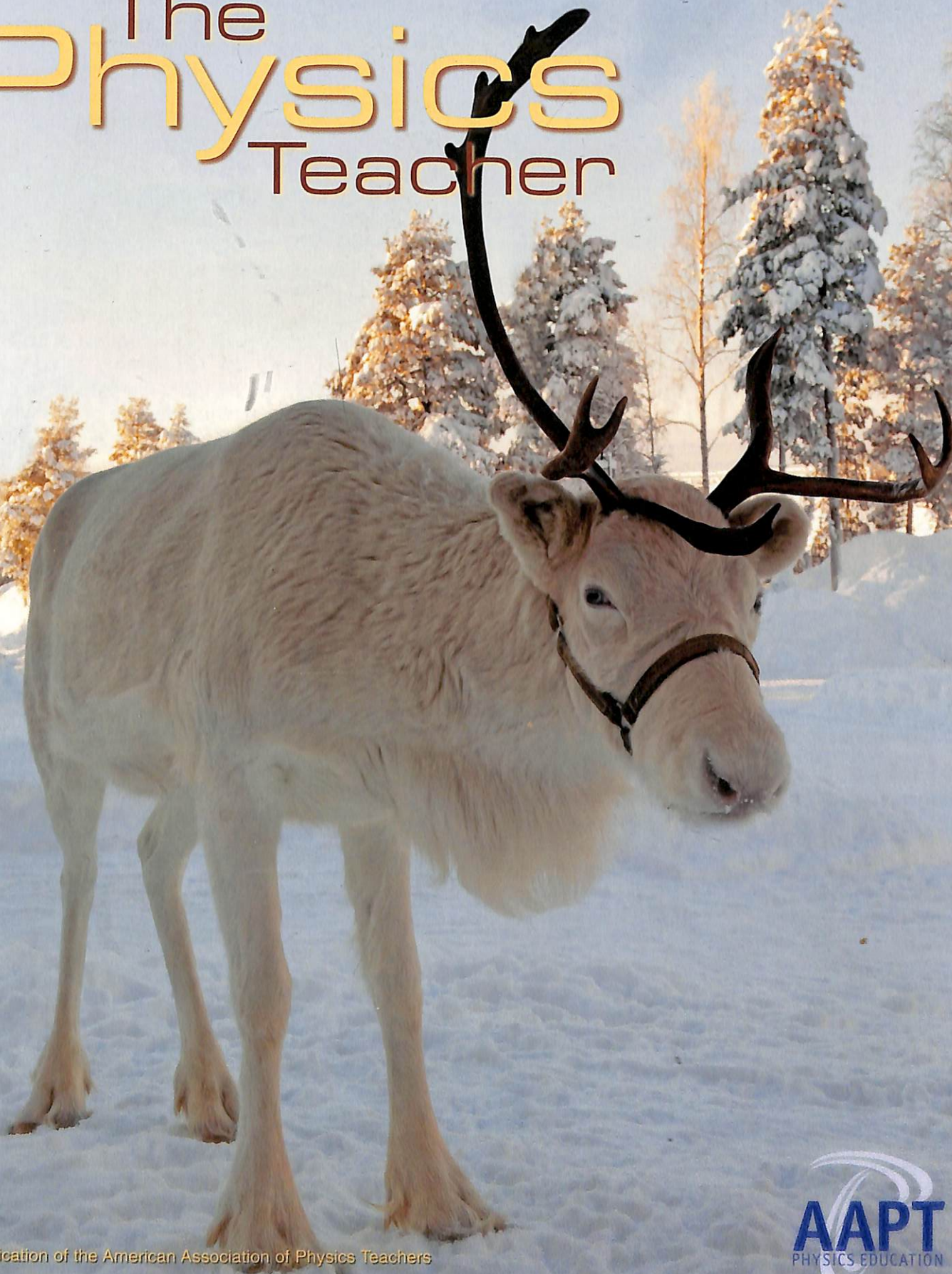


January 2013

Volume 51 Number 1

The Physics Teacher



A publication of the American Association of Physics Teachers

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The Physics Teacher

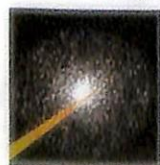
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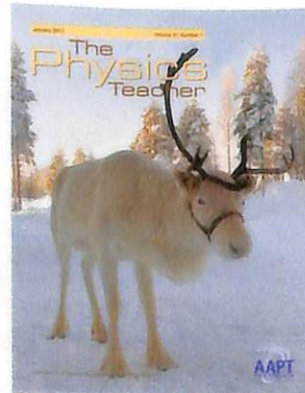
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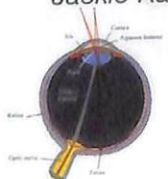
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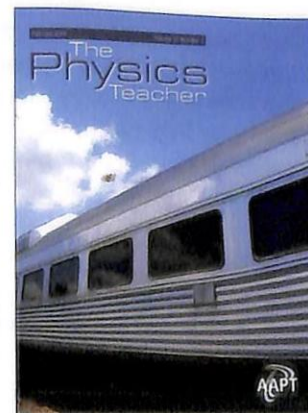
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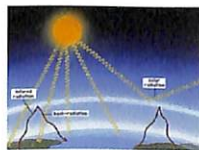
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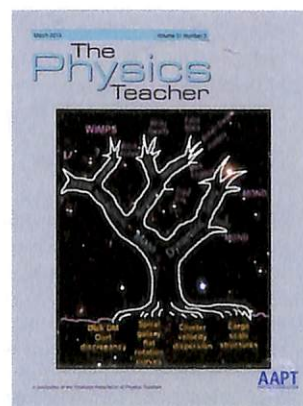
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This tree represents the current situation in dark matter. Several experimental observations are the root of the problem while the branches represent possible solutions, including modifications of the theories of gravity and inertia, as well as possible sources of unobserved mass. Don Lincoln's paper on dark matter begins on p. 134 of the current issue. (Figure courtesy Stacy McGaugh.)





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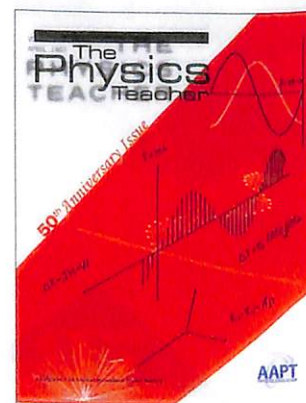
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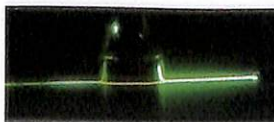
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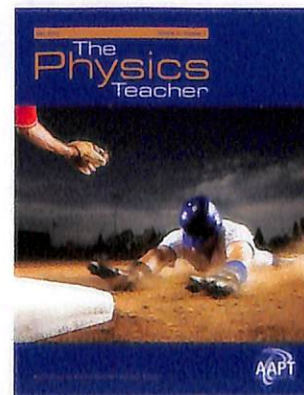


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David Kagan discusses the physics behind stealing bases in his paper beginning on p. 269 of this issue.



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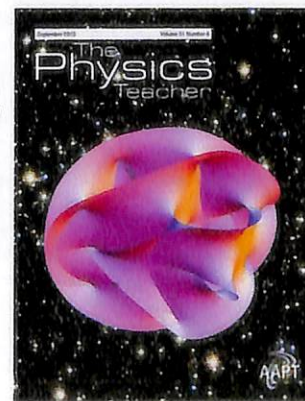
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This month's cover combines both the cosmos and a multidimensional Calabi-Yau manifold. If our universe contains dimensions beyond the familiar three, this will leave an indelible signature on the cosmos. The article by Don Lincoln beginning on p. 334 of this issue describes some current searches for these possible extra dimensions.



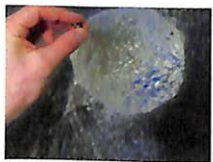
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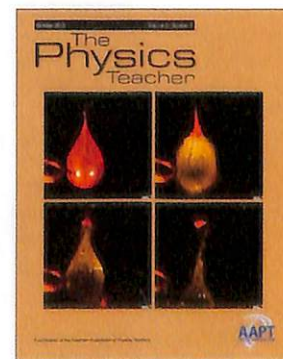


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explores the aftermath of piercing a suspended water balloon. Michael Vollmer and Klaus-Peter Möllmann's paper beginning on p. 400 of this issue discusses several factors that govern the maximum size of water drops in nature.




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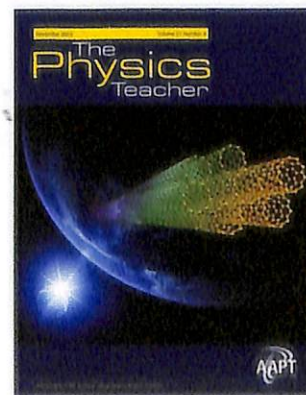


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shows a stylized rendition of a carbon nanotube cable for a space elevator. Zdeněk Bochníček's article (p. 462) examines the plausibility of such a construct on mechanical grounds and other considerations. (Carbon nanotube image by Chip Nyman, Nyman Digital Arts, ©2008 Karl G. Nyman, used with permission.)



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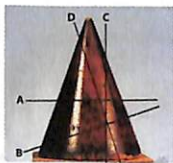
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This Month's Cover...

The showy spiral aurora featured on this month's cover is a close cousin to the helical electron trajectories highlighted in Thomas Greenslade's "The Shapes of Physics" on pp. 524–527 (photo by Nori Sakamoto, used with permission).

