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Oliver E. Buckley Condensed Matter Prize Talk: Once upon a time in Kamchatka: The Search for Natural Quasicrystals

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Twenty-five years ago, soon after the concept of quasicrystals was introduced¹ and the first examples were synthesized in the laboratory,² the search for a naturally-forming quasicrystal began. For many years, the search was informal. However, beginning about a decade ago,³ a systematic search was developed that, through planning and much serendipity, led to the discovery this past year of a natural candidate embedded in a rock reported to have been found in a remote region on the northern Kamchatka peninsula.⁴ The talk will describe the search for natural quasicrystals and the implications for physics and geology.

¹D. Levine and P.J. Steinhardt, PRL 53, 2477 (1984).

²D. Shechtman, I. Blech, D. Gratias and J.W. Cahn, PRL 53, 1951 (1984).

³P.J. Lu, K. Deffeyes, P.J. Steinhardt, and N. Yao, PRL 87, **275507 (2001)**.

⁴L. Bindi, P.J. Steinhardt, N. Yao and P.J. Lu, Science 324, 1306 (2009).