

Characterization of Ce@C₈₂ and Its Anion

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Ce@C₈₂ is isolated by HPLC and the cage symmetry is determined as C_{2v} by measuring the ¹³C NMR spectra of its anion.¹ The ¹³C NMR peaks of [Ce@C₈₂]⁻ show temperature-dependent shifts ascribed to the *f* electron remaining on the Ce atom. Both Ce@C₈₂ and [Ce@C₈₂]⁻ are ESR silent because of the highly anisotropic *g* matrix as well as of the fast relaxation process originating from the orbital angular momentum of the *f* electron. This is the complementary relationship to the observation of the paramagnetic shift in ¹³C NMR. [Ce@C₈₂]⁻ has a lower stability in air than [La@C₈₂]⁻.

- [1] T. Wakahara, J. Kobayashi, M. Yamada, Y. Maeda, T. Tsuchiya, M. Okamura, T. Akasaka, M. Waelchli, K. Kobayashi, S. Nagase, T. Kato, M. Kako, K. Yamamoto, and K. M. Kadish, *J. Am. Soc. Chem.*, **126**, 4483 (2004).