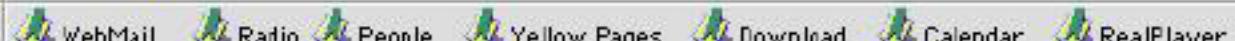




Location: <http://www.sciencemag.org/cgi/content/abstract/288/5469/1226>

[What's Related](#)



www.stke.org

CLICK TO APPLY ONLINE
FOR THE NEXT ROLEX AWARDS

SCIENCE ONLINE SCIENCE MAGAZINE HOME SCIENCE NOW NEXT WAVE SCIENCE'S STKE SCIENCE CAREERS E-MARKETPLACE

KATHLEEN CHAMBERS | Change Password | Change User Info | CiteTrack Alerts | Subscription Help | [Sign Out](#)

Science magazine

HELP SUBSCRIPTIONS FEEDBACK SIGN IN

SEARCH

BROWSE

► ORDER THIS ARTICLE

Coalescence of Single-Walled Carbon Nanotubes

M. Terrones,^{1*} H. Terrones,^{12†} F. Banhart,^{3†} J.-C. Chadier,⁴ P. M. Ajayan⁵

The coalescence of single-walled nanotubes is studied *in situ* under electron irradiation at high temperature in a transmission electron microscope. The merging process is investigated at the atomic level, using tight-binding molecular dynamics and Monte Carlo simulations. Vacancies induce coalescence via a zipper-like mechanism, imposing a continuous reorganization of atoms on individual tube lattices along adjacent tubes. Other topological defects induce the polymerization of tubes. Coalescence seems to be restricted to tubes with the same chirality, explaining the low frequency of occurrence of this event.

- [Full Text of this Article](#)
- [Reprint \(PDF\) Version of this Article](#)
- Similar articles found in:
[SCIENCE Online](#)
[ISI Web of Science](#)
[PubMed](#)
- [PubMed Citation](#)
- Search Medline for articles by:
[Terrones, M. I. Ajayan, P. M.](#)
- Alert me when:
[new articles cite this article](#)
- [Download to Citation Manager](#)
- Collections under which this article appears:
[Chemistry](#)

¹ Instituto de Física, UNAM, Laboratorio Junípero Serra, Apartado Postal 1-1010, 76000 Querétaro, Qro., México.

² School of Chemistry, Physics and Environmental Science, University of Sussex, Brighton BN1 9QH, UK.

