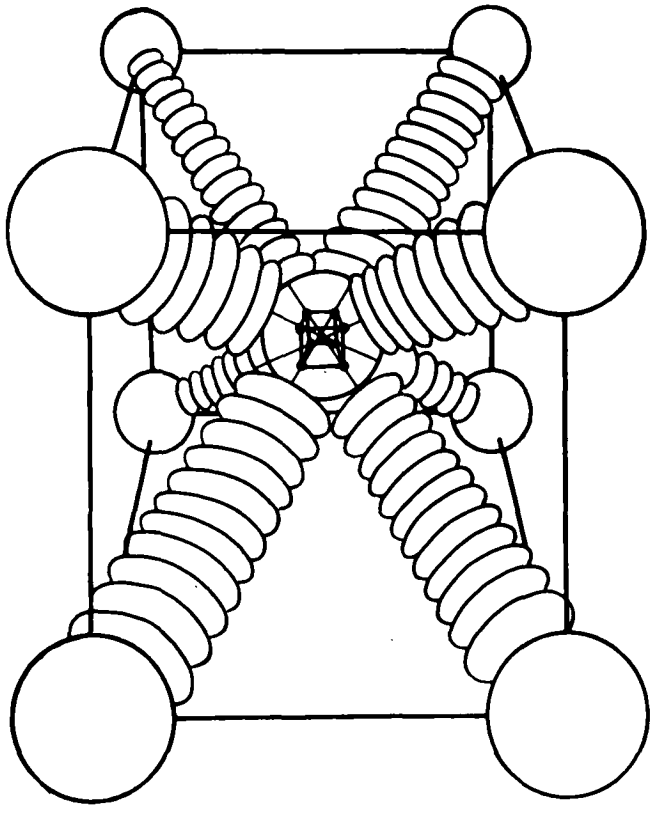
Editor's Choice

Figures appearing in the EDITOR'S CHOICE are those arising from materials research which strike the editor's fancy as being aesthetically appealing and eye-catching. No further criteria are applied and none should be assumed. When taken out of context, such figures often evoke images beyond and unrelated to the original meaning. Submissions of candidate figures are welcome and should include a complete source citation, a photocopy of the report in which it appears (or will appear), and a reproduction-quality original drawing or photograph of the figure in question.



The EDITOR'S CHOICE for this issue of the BULLETIN comes from the work of V.I. Dubinko, V.V. Slezov, A.V. Tur, and V.V. Yanovsky, who published it in an article entitled "The Theory of Gas Bubble Lattice" in *Radiation Effects* **100**, (1986) p. 85-104. The authors present a theory to explain why light insoluble gas atoms (such as helium), when formed in an irradiation environment in a metal lattice, have been observed to form an ordered lattice of gas bubbles which is in registry with the metal lattice and has lattice constants dependent on bubble size. The mechanism proposed to explain both the necessary inter-bubble repulsive force and the symmetry and alignment of the lattice is based on formation of interstitial dislocation loops in a "loop-punching" process promoted by the bubbles themselves. The loops form along the close-packed directions of the host metal lattice (minimum Burgers vector) thus forcing the bubbles to align in that direction as well. The figure illustrates the unit cell of the bubble lattice for the body-centered-cubic case. It also includes the unit cell of the metal lattice (in the central bubble) for comparison, as well as the stacks of interstitial loops along <111> directions. Readers of *Radiation Effects*, many of whom undoubtedly find themselves near high voltage ion accelerators from time to time, may note the similarity of this illustration to the configuration of insulator columns and equipotential metal spheres found at the front end of some machines.