i-p-i photodiode structures[23] that permit a separation of electrons and holes in direct space.

- By using band gap engineering and extracting [illegible]

[illegible]

such lateral superlattice structures could become superior to the double heterostructures. Indeed, [illegible]

[illegible]

in Group III-V compound semiconductors for example, the short minority carrier lifetimes that [illegible]

[illegible]

opportunities of changing the optical properties by selecting different orientations. While long (strain-free) superlattices $(AC)_p(BC)_q$ and $(p,q) \to \infty$ have the [illegible]

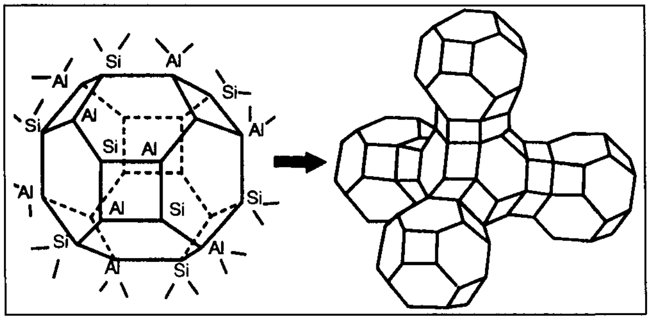
[illegible]

short-period superlattices have band gaps that depend on the layer orientation. This provides an inter- [illegible]

[illegible]

esting degree of freedom for superlattice band gap engineering without strain. The theory for this was [illegible]

[illegible]



[redacted]

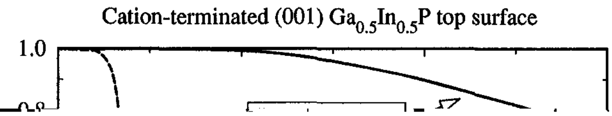
semiconductor. The zeolite consists of a wide band gap silica-aluminate or SiO_2. These mesoporous zeolite structures are synthesized from a lipid micelles solution doped with Si.[46a] After annealing of this [redacted]

One of the nontrivial problems to solve is that of the vapor diffusion inside the tubes without plugging them by the deposited semiconductor. Hence, it is essential to separate the loading (diffusion) cycle from the cracking cycle that is taking place at a higher temperature. A repeated sequence of loading and cracking cycles was found to be a convenient way of loading the zeolite structures. The semiconductor epitaxy is then completed by an annealing cycle. The entire process is monitored with a quadrupole mass spectrometer. Weight change measurements upon [redacted] zeolite loading.

Tomiya et al.[46b] have performed such experiments using a Y zeolite cage matrix and germanium as the prototype semiconductor. Germane vapor was loaded in the zeolite cages. The presence of germanium was [redacted]

GaP or GaAs or ZnSe.

The graphoepitaxial process could in fact play an important role in the formation of the semiconductor nanocrystals especially in the case of the mesoscopic



Average	Chalcopyrite	Random	CuAu	CuPt

Table II. Known Nontransition Metal $A^{I}B^{II}C^{V}$ Filled

65. E. Bucher, *Photoelectrochemistry and Photovoltaics of Layered Semiconductors*, ed. A. Aruchamy (Amsterdam, the Neth-

[redacted]

66. F. Gutmann, *Modern Bioelectrochemistry,* eds. F. Guttmann and H. Keyzer (New York: Plenum, 1986), pp. 177–197.
67. R. Pethig, ibidem, pp. 199–231.
68. R.R. Birge et al., *Nonlinear Electrodynamics in Biological Systems,* eds. W.R. Adey and A.F. Lawrence (New York:

[redacted]

n. M. Quintero and J. C. Wooley, *Phys. Status Solidi A* 92, 449 (1985).

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b. R. Juza and F. Hund, *Naturwiss* 33, 121 (1946); Z. Anorg. *Allg.*

[redacted]