**Balancing Nails**

“Seek Novel Approaches to Difficult Problems”

**Materials:** Fifteen or more twenty-penny nails with one nail pounded vertically into a wooden base.

**Demo:** Present students with a challenge, to balance as many nails on top of the vertical nail as possible. Nails are not allowed to touch the wooden base. The solution to the problem is not obvious. Lay one nail on the table, and rest the others on it by their necks, just below their heads. The directions of the nails must be alternated. Continue until the bottom nail is covered (about 12 nails). Lay the last nail directly over but antiparallel to the first. Now pick up the assembly, carefully squeezing top and bottom nails together. The others should end up angling somewhat downward. This assembly may now be carefully balanced on the head of the vertical nail. The grouping of nails is stable since the center of mass of the assembly is below the point of support.