

Week 68 (12/29/03)

### Tower of circles

Consider  $N$  circles stacked on top of each other inside an isosceles triangle, as shown below for the case  $N = 4$ . Let  $A_C$  be the sum of the areas of the  $N$  circles, and let  $A_T$  be the area of the triangle. In terms of  $N$ , what should the vertex angle,  $\alpha$ , be so that the ratio  $A_C/A_T$  is maximized? Assume that  $N$  is large, and ignore terms in your answer that are of subleading order in  $N$ .

