

Re: Circles packed within a circle.

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w.taylor@math.canterbury.ac.nz (Bill Taylor) wrote:

- > *This must surely be well studied already?*
- >
- > *It is desired to pack as many unit circles within a circle radius $R > 1$.*
- > *Non-overlapping of course, though they may be tangential.*
- >
- > *Clearly for $R < 2$, only one circle will fit.*
- >
- > *For $R \geq 2$, but less than some larger easily-calculable number,*
- > *2 circles is OK, but for $R \geq$ this, one can fit 3.*
- >
- > *Similarly one may get 4 at some higher number; then 5.*
- >
- > *BUT NOT 6!*
- > *As soon as it becomes possible to fit six circles inside, it is already*
- > *possible to fit seven! There is no maximal pattern of six circles.*
- >
- > *There are certain other numbers of circles which cannot be maximal*
- > *numbers.*

18 is surely such a number. But what makes you think that there need be any other such numbers? I think, offhand, that there might not be any others.

- > *What is known about this in general?*

I don't know. Look at

<<http://hydra.nat.uni-magdeburg.de/packing/cci/cci.html>> and find N such that the radius is the same as for N+1.

Cheers,
David