International scientific conference

“Algebraic and Geometric Methods of Analysis”

Book of abstracts

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Odesa, Ukraine

Conference webpage: *imath.kiev.ua/~topology/conf/agma2019/*

List of topics

- Algebraic methods in geometry
- Differential geometry in the large
- Geometry and topology of differentiable manifolds
- General and algebraic topology
- Dynamical systems and their applications
- Geometric problems in mathematical analysis
- Geometric and topological methods in natural sciences
- History and methodology of teaching in mathematics

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Note on congruent numbers

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A positive integer A is said to be a *congruent number* if A is the area of a right triangle with rational sides. One may consider only A square-free.

In 1998, F. R. Nemenzo [3] listed all congruent numbers less than 40 000, and non-congruent numbers were studied by F. Lemmermeyer [2] and W. Cheng and X. Guo [1] among others.

I will present short proof of the following

Theorem 1. *Every positive integer A fulfilling the Diophantine equation*

$$A^2 = x^2 + y^4$$

is a congruent number.

References

[1] W. Cheng, X. Guo. *Some new families of non-congruent numbers*, J. Numb. Theory 196 (2019), 291–305.
[2] F. Lemmermeyer. *Some families of non-congruent numbers*, Acta Arith. 110 (2003)
[3] F. R. Nemenzo. *All congruent numbers less than 40000*, Proc. J. Acad. 74 (1998), 29–31.