

Magic Hexagons – History and new developments

By Hans F. Bauch from Stralsund - H.Bauch@fh-stralsund.de

Mondayseminar in Mathematical Education, 14. September 2009, Campus Gimlemon, 14.15-15.30, J2-009

Abstract:

A magic figure in a regular tessellation is given, if you allocate the numbers 1,2,3,..so in the tiles of the figure that in each straight row the numbers add to the same – magic – sum.

120 years ago the and the only solution of the first and unique classical magic hexagon of 19 little hexagons was given by Ernst von Haselberg from Stralsund after offering the problem to the public for the first time.

20 years ago a complete overview about all possible magic hexagons in the hexagon as well as in the triangle tessellation was given by the author. The now so-called t-hexagons were mentioned the first time, published in 1991, just as the author started his work in Stralsund. It was funny that in 2003 exact these t-hexagons were reinvented without knowledge of that and further problems were solved by Baker and King.

In the last years some generalisations were made in this field, for instance to search for magic allocations with an unbroken sequence of natural numbers or integers but starting with an arbitrary integer. Then we will have more generalised magic hexagons also from Haselberg type, h-hexagons. For me it is interesting to reduce the efforts to the case that the magic sum is zero or as close as possible to zero. Following an unpublished idea from Sillke nearly all of these generalised problems are solved by students of the author in Stralsund in the last years.

We could find between the some thousand years old Lo-Shu magic square of 9 tiles with magic sum 15 and the Haselberg h-hexagon with 19 tiles and magic sum 38 the new generalised magic t-hexagon with 13 tiles and magic sum 0 with only 10 different solutions.