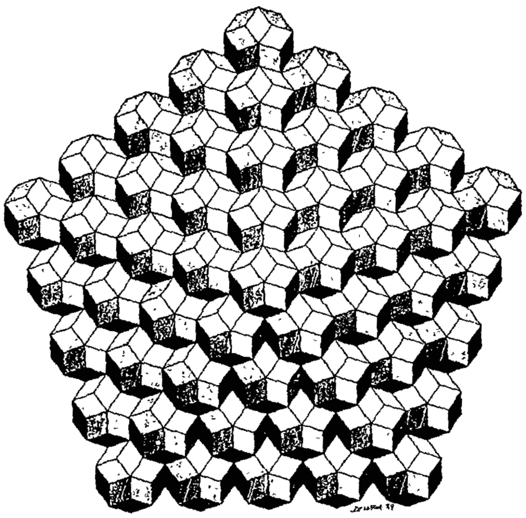
Symmetry of STRUCTURE

an interdisciplinary Symposium

Abstracts

II.



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SOME PROPERTIES OF ALGEBRAIC SURFACES

WITH SYMMETRIES

Ternovsky V.A.

B.Kuna 27, 247

333022 Simferopol

USSR, The Crimea

Let G group be finite and irreducible in substantial m-dimentional Euclidean space E^m. The group is generated by orthogonal reflections. N is a number for all hyperplanes with a common point of intersection, their reflections belong to G. I^G is an algebra of group G invariants.

Polinomials below are invariant to G,

$$\theta_{2t} = \sum_{k=1}^{N} \eta_k^{2t}, \quad t \geq 1, \tag{1}$$

where $\eta_k = 0$ are normalized equations of symmetry hyperplanes; θ^G is algebra of such invariants. Actually there are some known different methods for obtaining $I_{\eta_i} (i=\overline{1,m})$ generators in algebra I^G (Coxeter, 1951; Flatto, 1978; Ignatenko, 1980, 1984). Ignatenko V.F. found that not all generators of even degrees can be represented by (1) if $G = F_4, B_m, D_m$. And the problem arises for finding generators $\theta^G \neq I^G$. With its solution a number of results (Ternovsky, 1983, 1988) has been obtained which is represented in the following table :

G	ℓ	d_i
$[N]$	2	2, 2N
A_3	3	2, 4, 6
A_4	5	2, 4, 6, 8, 10
A_5	10	2, 4, ..., 18, 30
B_{12}	$24 \leq \ell \leq 144$	2, 4, 8, 10, ..., 48, 54, ...?
D_4	9	2, 6, 8, 10, 12, 14, 16, 20, 24
F_4	5 .	2, 8, 12, 18, 24
E_6	7	2, 6, 8, 10, 12, 14, 18

where ℓ is a number for all generators in algebra θ^G, d_i $(i = \overline{1,\ell})$ are their degrees; in B_{12} case only a number of all generators has been found.

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