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Autor:	van der Geer, G. / van der Vlugt, M.
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homogenize (15) the system

$$(16) \quad \sum_{i=1}^5 x_i = 0, \quad \sum_{i=1}^5 x_i^3 = Bx_0^3, \quad \sum_{i=1}^5 x_i^5 = Cx_0^5.$$

defines a projective variety V of dimension 2 in the five dimensional projective space \mathbf{P}^5 .

We intersect V with the hyperplane $x_0 + x_5 = 0$ and obtain a system of equations of the form (2). By using the results of Section 1 (especially Corollary (1.3)) one can easily show that $\rho(BCH(3)) = 5$ for $m \geq 10$. We leave the details to the reader.

As a final remark we would like to point out that we think that many more problems on cyclic codes can be attacked successfully using methods from algebraic geometry as is done in this paper. We refer to [C] for a list of such problems.

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G. van der Geer

Faculteit Wiskunde en Informatica
Universiteit van Amsterdam
Plantage Muidergracht 24
NL-1018 TV Amsterdam
The Netherlands
e-mail : geer@science.uva.nl

M. van der Vlugt

Mathematisch Instituut
Universiteit te Leiden
Niels Bohrweg 1
NL-2333 CA Leiden
The Netherlands
e-mail : vlugt@math.leidenuniv.nl

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