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A matrix realization of Kummer hyperelliptic varieties. (English. Russian original)

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Let \mathcal{H} be the space of complex symmetric $(g+2) \times (g+2)$ matrices $H = (h_{ij})$ with $h_{g+2, g+2} = 0$ and $h_{g+1, g+2} = 2$. Let $K\mathcal{H} = \{H \in \mathcal{H} : \text{rank} H \leq 3\}$ be a matrix variety. Let C be a smooth hyperelliptic curve of genus g defined by an equation $y^2 = 4x^{2g+1} + \sum_{k=0}^{2g} \lambda_{2g-k} x^{2g-k}$. In this paper the authors obtain an explicit realization of the Kummer variety $\text{Kum}(C) = \text{Jac}(C)/\pm$ of the hyperelliptic curve C in terms of Klein's σ -functions as a subvariety of $K\mathcal{H}$. As a corollary of this result, there is a new proof of the theorem of Dubrovin and Novikov on the rationality of the universal space of Jacobians of hyperelliptic curves of genus g with a distinguished branch point ∞ .

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MSC:

14J28 K3 surfaces and Enriques surfaces

14H52 Elliptic curves

14M12 Determinantal varieties

14H40 Jacobians, Prym varieties

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Kummer hyperelliptic varieties; matrix variety; rationality; Jacobians of hyperelliptic curves

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