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A (-86)-Sphere in the K3 Surface

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Abstract: Consider the self-intersection number $[\Sigma].[\Sigma]$ of a 2-dimensional sphere Σ embedded into a K3 surface. Since a K3 surface is spin, $[\Sigma].[\Sigma]$ is even and by Gauge theoretical arguments $[\Sigma].[\Sigma] \neq 0$. No other restriction on $[\Sigma].[\Sigma]$ is known. It is a problem 4.105(D) from the Kirby list \cite{K} to determine the possible values of $[\Sigma].[\Sigma]$. This paper shows that the even numbers between 0 and -86 do appear as $[\Sigma].[\Sigma]$.

 [Keywords](#)
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