

## Quaternionic maps and minimal surfaces

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**Abstract.** Let  $(M, J^\alpha, \alpha = 1, 2, 3)$  and  $(N, \mathcal{J}^\alpha, \alpha = 1, 2, 3)$  be hyperkähler manifolds. We study stationary quaternionic maps between  $M$  and  $N$ . We first show that if there are no holomorphic 2-spheres in the target then any sequence of stationary quaternionic maps with bounded energy subconverges to a stationary quaternionic map strongly in  $W^{1,2}(M, N)$ . We then find that certain tangent maps of quaternionic maps give rise to an interesting minimal 2-sphere. At last we construct a stationary quaternionic map with a codimension-3 singular set by using the embedded minimal  $\mathbb{S}^2$  in the hyperkähler surface  $\tilde{M}_2^0$  studied by Atiyah-Hitchin.

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