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<tr><th>authors</th><td>Pawel Goldstein
Piotr Hajlasz</td></tr>
<tr><th>title</th><td>Sobolev mappings, degree, homotopy classes and rational homology spheres</td></tr>
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<tr><th>volume</th><td></td></tr>
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<tr><th>id</th><td>id1104634660165381045</td></tr>
<tr><th>abstract</th><td>In the paper we investigate the degree and the homotopy theory of Orlicz-Sobolev mappings W^1,P(M,N) between manifolds, where the Young function P satisfies a divergence condition and forms a slightly larger space than W^1,n, n= M. In particular, we prove that if M and N are compact oriented manifolds without boundary and M= N=n, then the degree is well defined in W^1,P(M,N) if and only if the universal cover of N is not a rational homology sphere, and in the case n=4, if and only if N is not homeomorphic to S^4.</td></tr>
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<tr><th>doi</th><td>10.1007/s12220-010-9194-4</td></tr>
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<tr><th>id</th><td>id5606397796911496748</td></tr>
<tr><th>abstract</th><td>In the paper we investigate the degree and the homotopy theory of Orlicz-Sobolev mappings W 1,P (M, N) between manifolds, where the Young function P satisfies a divergence condition and forms a slightly larger space than W 1,n , n = dim M . In particular, we prove that if M and N are compact oriented manifolds without boundary and dim M = dim N = n, then the degree is well defined in W 1,P (M, N) if and only if the universal cover of N is not a rational homology sphere, and in the case n = 4, if and only if N is not homeomorphic to S 4 . Recall that the Jacobian J f of a function f : M â†’ N , with fixed volume forms Âµ on M and Î½ on N , is given by the relation f * Î½ = J f Âµ, and deg f = (M J f dÂµ)/(N dÎ½) = |N | âˆ’1 M J f dÂµ. Therefore, by summing up the relations (3.2) over all the n-simplices of T we obtain We observe that every face of âˆ‚âˆ† n Ã— [0, 1] appears in the above calculation twice, and with opposite orientation, thus âˆ† n âˆˆT âˆ‚âˆ† n Ã—[0,1] J H cancels to</td></tr>
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