	doc_1		doc_2		decision	id
cases	**authors**	• Mizuho Okumura	**authors**	• Mizuho Okumura	NOT DUPLICATES	1876
	title	Profile decomposition in Sobolev spaces and decomposition of integral functionals II: homogeneous case	**title**	Profile decomposition in Sobolev spaces and decomposition of integral functionals I: inhomogeneous case		
	publication_date	2021-09-16 18:18:48+00:00	**publication_date**	2021-09-16 18:18:09+00:00		
	source	SupportedSources.ARXIV	**source**	SupportedSources.ARXIV		
	journal	None	**journal**	None		
	volume		**volume**			
	doi		**doi**			
	urls	• http://arxiv.org/pdf/2109.08177v2 • http://arxiv.org/abs/2109.08177v2 • http://arxiv.org/pdf/2109.08177v2	**urls**	• http://arxiv.org/pdf/2109.08176v3 • http://arxiv.org/abs/2109.08176v3 • http://arxiv.org/pdf/2109.08176v3		
	id	id-7322349526461840817	**id**	id-4883700700986620505		
	abstract	The present paper is devoted to a theory of profile decomposition for bounded sequences in \emph{homogeneous} Sobolev spaces, and it enables us to analyze the lack of compactness of bounded sequences. For every bounded sequence in homogeneous Sobolev spaces, the sequence is asymptotically decomposed into the sum of profiles with dilations and translations and a double suffixed residual term. One gets an energy decomposition in the homogeneous Sobolev norm. The residual term becomes arbitrarily small in the critical Lebesgue or Sobolev spaces of lower order, and then, the results of decomposition of integral functionals are obtained, which are important strict decompositions in the critical Lebesgue or Sobolev spaces where the residual term is vanishing.	**abstract**	The present paper is devoted to analysis of the lack of compactness of bounded sequences in \emph{inhomogeneous} Sobolev spaces, where bounded sequences might fail to be compact due to an isometric group action, that is, \emph{translation}. It will be proved that every bounded sequence (u_n) has (possibly infinitely many) \emph{profiles}, and then the sequence is asymptotically decomposed into a sum of translated profiles and a double-suffixed residual term, where the residual term becomes arbitrarily small in appropriate Lebesgue or Sobolev spaces of lower order. To this end, functional analytic frameworks are established in an abstract way by making use of a group action G, in order to characterize profiles by (u_n) and G. One also finds that a decomposition of the Sobolev norm into profiles is bounded by the supremum of the norm of u_n. Moreover, the profile decomposition leads to results of decomposition of integral functionals of subcritical order. It is noteworthy that the space where the decomposition of integral functionals holds is the same as that where the residual term is vanishing.		
	versions		**versions**			