



Semi-classical states for the Nonlinear Schrödinger Equation on saddle points of the potential via variational methods

Pietro d'Avenia, Alessio Pomponio, David Ruiz

(Submitted on 28 Jul 2011 (v1), last revised 9 Mar 2012 (this version, v2))

In this paper we study semiclassical states for the problem $-\epsilon^2 \Delta u + V(x)u = f(u) \quad \text{in } \mathbb{R}^N$, where $f(u)$ is a superlinear nonlinear term. Under our hypotheses on f a Lyapunov-Schmidt reduction is not possible. We use variational methods to prove the existence of spikes around saddle points of the potential $V(x)$.

Comments: pre-peer version, to appear in J. Funct. Anal

Subjects: **Analysis of PDEs (math.AP)**

MSC classes: 35J20, 35B40

Cite as: **arXiv:1107.5652 [math.AP]**

(or **arXiv:1107.5652v2 [math.AP]** for this version)

Submission history

From: Pietro d'Avenia [[view email](#)]

[v1] Thu, 28 Jul 2011 09:03:34 GMT (31kb)

[v2] Fri, 9 Mar 2012 16:57:56 GMT (31kb)

[Which authors of this paper are endorsers?](#)

Link back to: [arXiv](#), [form interface](#), [contact](#).

Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

math.AP

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [1107](#)

Change to browse by:

[math](#)

References & Citations

- [NASA ADS](#)

Bookmark([what is this?](#))

