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The concentration-compactness principle in the calculus of variations. The limit case. II.

(English) [Zbl 0704.49006](#)

Rev. Mat. Iberoam. 1, No. 2, 45-121 (1985).

Summary: [For part I see the author, *ibid.* No.1, 145-201 (1985; [Zbl 0704.49005](#)).]

This paper is the second part of a work devoted to the study of variational problems (with constraints) in functional spaces defined on domains presenting some (local) form of invariance by a noncompact group of transformations like the dilations in \mathbb{R}^N . This contains, for example, the class of problems associated with the determination of extremal functions in inequalities such as Sobolev inequalities, convolution or trace inequalities. We show how the concentration- compactness principle and method introduced in the so-called locally compact case are to be modified in order to solve these problems, and we present applications to functional analysis, mathematical physics, differential geometry and harmonic analysis.

MSC:

- [49J10](#) Existence theories for free problems in two or more independent variables
- [49J27](#) Existence theories for problems in abstract spaces
- [46E35](#) Sobolev spaces and other spaces of “smooth” functions, embedding theorems, trace theorems

Cited in **9** Reviews
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Keywords:

[Sobolev inequalities](#); [convolution or trace inequalities](#); [concentration- compactness principle](#)

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