

[Mawhin, Jean](#)

Leray-Schauder degree: A half century of extensions and applications. (English)

[Zbl 0957.47045](#)

[Topol. Methods Nonlinear Anal.](#) 14, No. 2, 195-228 (1999).

As indicated in the title this article presents a historic roundtrip through the development of Leray-Schauder degree based mainly on the original articles of Leray and Schauder. The author states the results of these articles in modern terms and modern notation but he succeeds in transmitting the flavour of these articles by verbally quoting Leray and Schauder (in French and German). The starting point is the invention of Leray-Schauder degree in the thirties. The tour then turns to the theory of the fixed point index as developed by Leray and briefly touches the application of Leray-Schauder degree to bifurcation theory. Finally, there is a short section on degree theory for Fredholm mappings between Banach manifolds.

(One could read this article with much more pleasure if some editing process had taken place. The author seems to use his own spelling rules, he uses “teach” as a regular verb, and in some places even French words have slipped into the English text).

Reviewer: [Christian Fenske \(Gießen\)](#)

MSC:

- [47H11](#) Degree theory for nonlinear operators
- [55M25](#) Degree, winding number
- [55M20](#) Fixed points and coincidences in algebraic topology
- [58C30](#) Fixed-point theorems on manifolds
- [58C40](#) Spectral theory; eigenvalue problems on manifolds
- [47J15](#) Abstract bifurcation theory involving nonlinear operators
- [01A60](#) History of mathematics in the 20th century

Cited in **34** Documents

Keywords:

[Leray-Schauder degree](#); [fixed point index](#); [fixed point theorems](#); [continuation theorems](#); [bifurcation](#); [Fredholm mapping](#); [bifurcation theory](#); [Banach manifolds](#)

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