

**Title:** "What is an ind-group? Basics - Examples - Problems"  
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**Abstract:** The concept of an ind-group is due to Shafarevich (1966/1981) who wanted to understand the structure of the automorphism  $Aut(A^n)$  group of affine  $n$ -space  $A^n$ . He claimed an interesting result, namely that the closed subgroup  $SAut(A^n)$  of automorphisms with jacobian determinant equal to 1 is simple as an ind-group, i.e. it does not contain a nontrivial closed normal subgroup. The reason for this is its Lie-algebra which was known to be simple.

There was not much interest in this subject until 2002, when Kumar took up the theme in his book on Kac-Moody groups. Jointly with Jean-Philippe Furter we started to develop the basics of the theory, found many interesting and surprising examples and counterexamples, and were able to show that a number of "classical" results have a very nice interpretation in this language. But we have to admit that many of the fundamental problems are still unsolved, and completely new ideas are necessary for the next steps.

I will report on the basics, will give several examples and results, and will finally describe some of the main open problems.