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# IN MEMORIAM: ÉRIC JALIGOT
1972–2013

Éric Jaligot left us on July 10, 2013. Jaligot was born in Saint-Étienne in France and studied at Lyon 1 University; he completed his Ph.D. under the joint supervision of Tuna Altınel and Bruno Poizat. His thesis, which dealt with groups of finite Morley rank and the Cherlin-Zilber algebraicity conjecture, was awarded the ASL 2000 Sacks prize for an outstanding dissertation in mathematical logic.

We must say a few words about the subject of groups of finite Morley rank. These first appeared in the study of uncountably categorical theories, and in the seventies Gregory Cherlin and Boris Zilber independently conjectured that infinite simple groups of finite Morley rank are algebraic. The question is hard since these groups bear no geometric structure other than coarse restrictions on the combinatorics of definable subsets. In the eighties, Alexandre Borovik suggested adapting methods from finite group theory and divided the classification of groups of finite Morley rank into four main cases. Groups of so-called even and odd type loosely evoke algebraic groups in characteristic 2 and not 2, respectively, in terms of their Sylow 2-subgroups. Groups of mixed type retain features of both cases and should not exist according to the conjecture. Neither should groups of degenerate type, which would have no elements of order 2. [2] gives a fuller overview than we do.

Jaligot's dissertation was a deep contribution to the even and mixed type analyses. His work on minimal cases and then Tuna Altınel's *Habilitation* thesis eventually led to the expected answer to the conjecture both in mixed and even type as described in [1]. It is worth noting that Jaligot tackled the smallest configurations, those precisely where the arsenal from finite group theory cannot be used. Immediately after his thesis, he attacked the odd type case, always under smallness assumptions, and then joined forces with Gregory Cherlin while spending a term at Rutgers University in 2001 on a Lavoisier grant from the French Foreign Office. The resulting work [3] delineates with extreme precision some possible non-algebraic configurations of finite Morley rank. Later, he would come back to the topic regularly, first with Jeffrey Burdges and Gregory Cherlin, then leading the author to a generalization as his Ph.D. subject, and finally following Alexandre Borovik's suggestion in an even broader context. The author was part of the latter project and will try to pursue Jaligot's original vision.

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Jaligot returned to France as a CNRS Chargé de Recherche in the Équipe de Logique Mathématique at Paris 7 University, and after his *Habilitation* thesis in 2005 moved to Lyon 1 University on a higher position. At that time his main interest was the theory of Carter subgroups. Their study in the finite Morley rank context had been initiated by Frank Wagner and Olivier Frécon, another student of Tuna Altınel's. Frécon and Jaligot proved the existence of Carter subgroups in general, and then Jaligot alone provided a conjugacy result for those Carter subgroups whose conjugates generically cover the group in a paper he whimsically entitled *Generix Never Gives Up* [4]. Although the setting is still that of groups of finite Morley rank, the theory of Carter subgroups is rather different from Jaligot's earlier work insofar as it aims at retrieving geometric information inside the group and pushing it towards structurally resembling an algebraic group without looking for an actual identification. Jaligot thus pioneered a way to an elementary approach to the Weyl group, a topic which has attracted much effort since.

In 2010, Jaligot was promoted to CNRS Directeur de Recherche at the Fourier Institute in Grenoble and extended his range in the model theory of groups with contributions to *o*-minimality, hyperbolic groups, and automorphisms of universal structures. He was awarded an ERC starting grant in 2011.

Jaligot's taste for groups was joyful and playful. A lover of simplicity in all senses, he was especially fond of configurations with little structure. He valued the craft of minimal settings much more than the industry of theoretical constructions, and passed the thrill of the most difficult case he would often lose interest and take up another challenge. He did not like to introduce notions or terminologies but made one notable exception in his work on Carter subgroups: a subgroup whose conjugates make up a generic set, he called a *generous* subgroup.

One derives some comfort from thinking that the word will remain associated with Jaligot's name. For generous he was, of his time and ideas. He had great talent for sharing mathematics, and his patience as an advisor was immense. His students remember with emotion his clarity and friendly availability. And all who were lucky to know him will bear in mind his kindness, his calm, his tactfulness, his sense of humor culminating in perfect puns, his love for cuisine—*grande cuisine* or *bonne franquette*, not so much *nouvelle cuisine*—and hearty appetite. His loss is deeply regretted.

A conference in Jaligot's honor is planned for June 26–27, 2014, at Lyon 1 University. The author warmly thanks Gregory Cherlin for helping him write this text.

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