

STATEMENT OF RESEARCH

LUÍS PEREIRA

My area of research is the Combinatorics of Singular Cardinals with an emphasis on Cardinal Arithmetic. I am interested in connections between the PCF conjecture and more standard combinatorics.

During this workshop I would like to discuss with young researchers in fine-structure or in the forcing of fine-structural objects.

I have proved ([2]) that one could prove the PCF conjecture, that is, $2^{\aleph_\omega} < \aleph_{\omega_1}$ when \aleph_ω is a strong limit, if one could force a tree-like continuous scale with an \aleph_ω -distributive forcing. A continuous tree-like scale is a kind of very weak morass at a singular cardinal.

Continuous tree-like scales exist in L ([1, 3]) in products of successor cardinals and it is an open question whether this is also true for products of inaccessible cardinals. The likely answer is yes, because there are morasses at measurable cardinals in higher Inner Models. I would also be interested in discussing these issues with other young researchers.

Finally, I would like to talk with people interested in walks on ordinals, ρ -functions, and in the forcing of square sequences whose ρ -functions have additional properties. Giving rise to continuous tree-like scales is one of them.

REFERENCES

- [1] H. D. Donder, R. B. Jensen, and L. J. Stanley, *Condensation-coherent global square systems*, In A. Nerode and R.A. Shore, editors, *Recursion Theory*, volume 42 of Proc. of Symp. in Pure Math, pages 237-258, Providence 1985, AMS
- [2] L. Pereira, *The PCF conjecture and large cardinals*, J. Symbolic Logic 73 (2008), 674-688
- [3] S. Shelah and L. J. Stanley, *The combinatorics of combinatorial coding by a real*, J. Symbolic Logic 60 (1995), 36-57