The family of moment-angle manifolds

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SUMMARY

The family of moment-angle manifolds appeared as intersections of quadrics in the 70's in the work of C. Camacho, N. Kuiper and J. Palis and of M. Chaperon on Holomorphic Dynamical Systems, and their real versions in the work of C. T. C. Wall on Singularities. They have reappeared several times in Dynamical Systems and other branches of Mathematics and they have produced new interesting examples in various areas of Geometry. Their topology has been studied for over 30 years.

They were studied during almost 20 years by two different communities of mathematicians without any contact between them. The Toric Topology community had a more abstract approach and constructed various generalizations with different connections with Geometry and even Robotics. The meeting of both communities has given a new impulse to the study of these objects and many new results have been obtained in the last 5 years.

Recent work on group actions on certain moment-angle manifolds has raised some problems about matrices that appear also in the theories of Self-correcting Codes and of the Fast Fourier Transform.

I will try to give a panoramic view of the principal results and problems in this area.

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