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„Cellular motivic homotopy theory and the spectrum of \mathbb{C} -motivic modular forms.“

Abstract:

Motivic homotopy theory is a machinery developed by V. Voevodsky and F. Morel to apply homotopy-theoretic methods to questions in algebraic geometry.

More recently, the study of motivic homotopy theory over the base field \mathbb{C} has successfully been applied by D. Isaksen and others to push the computation of stable homotopy groups further.

Those applications are based on the surprisingly simple structure of the (p -completed) Adams-Novikov spectral sequence in motivic spectra over \mathbb{C} . Its behaviour can be described completely in terms of the ordinary Adams-Novikov spectral sequence. This suggests that the category of cellular p -complete motivic spectra over \mathbb{C} can be constructed directly from stable homotopy theory, circumventing the machinery of motivic homotopy theory completely for those applications. Such a construction was recently found by P. Pstragowski.

In my talk, I want to explain a simpler construction arising in joint work with B. Gheorghe, D. Isaksen and N. Ricka. Our construction allows to produce the usual \mathbb{C} -motivic analogues of (p -completions of) many spectra such as MU, K and Eilenberg-MacLane spectra in a natural way, and also produces a previously unknown motivic analogue "mmf" of the topological modular forms spectrum.