

明治大学先端数理科学インスティテュート

MIMS現象数理カフェセミナー

日時: 2014年9月10日(水) (12:10 - 12:50)

場所: 中野キャンパス8階 談話室

Mathematical researches of spiral tilings with phyllotactic properties

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Abstract: Phyllotaxis is the arrangements of leaves, florets and other organs of plants. In particular, it is well known that typical phyllotactic patterns which appear to plants such as sunflower and pine cone are intimately related to the golden section and Fibonacci sequence. In the classical subject of phyllotaxis, helical models of the cylinder and spiral models of the disk were studied by using the Voronoi diagram and the optimal circle packing, etc. As one of plane tilings, Akio Hizume devised triangular spiral tilings called Fibonacci tornado. They are tilings which admit a transitive action by a similarity transformation generated by the golden section. Moreover, he presented origami developments of Fibonacci Tornado by one sheet. In this presentation, we will introduce mathematical researches of spiral tilings with phyllotactic properties. In particular, we will consider spiral tilings given as a Voronoi diagram.



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