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CRM Barcelona

Centre de Recerca Matemàtica

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Limit Cycles of Differential Equations

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Foreword

This book contains two sets of revised and augmented notes prepared for the Advanced Course on Limit Cycles and Differential Equations given at the Centre de Recerca Matemàtica in June 2006, as part of its year-long research programme on Hilbert's 16th problem. The common goal of the two sets of notes is to help young mathematicians enter a very active area of research lying on the borderline between dynamical systems, analysis and applications.

The first part of the book, by Colin Christopher, considers some of the topics which surround the Poincar center-focus problem for polynomial systems, a subject closely tied with the integrability of polynomial systems. The second part, by Chengzhi Li, is devoted to the introduction of some basic concepts and methods in the study of Abelian integrals and applications to the weak Hilbert's 16th problem.

Besides our indebtedness to the Centre de Recerca Matemàtica, thanks are due to Jaume Llibre and Armengol Gasull, the course co-ordinators, for giving us this challenging but rewarding opportunity and for providing such a pleasant environment during the programme.

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