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Foreword

For some time the amalgamation of the separation powers of chromatography and electrophoresis had been considered the Holy Grail of high performance liquid phase separations. It was thought that since the two techniques are individually among the most widely used analytical separation methods, their hybridization into electrochromatography should result in a superior, high-resolution separation technique. Nevertheless, until the introduction of fused silica capillaries has provided the technical foundation to do so, capillary electrochromatography (CEC) had not become a practicable proposition.

However, in recent years the situation has changed and, as the publication of this special thematic issue of the Journal demonstrates, the interest in CEC is on the rise. Even those researchers, whose interest lies in the development of chip based analytical systems, are closely following the development of CEC since electroosmosis is expected to be the main means of generating fluid movement in the microducts of such devices as well. Indeed, the most distinguished feature of CEC is the employment of electroosmotic flow instead of pressure driven flow. The electroosmotic flow field of the mobile phase begets less band spreading; consequently CEC offers higher column efficiency than other chromatographic techniques.

Nonetheless, the development of CEC is impeded

by several factors. First of all, our understanding of the electroosmotic flow field in packed beds is rather poor and therefore a satisfactory theoretical underpinning of the separation process is yet to be established. On the other hand, preparation of CEC columns is still a rather cumbersome endeavor. With the concomitant lack of robustness the requirement of homemade columns is a deterrent for many workers who consider entering the field.

It is hoped that the present compilation of papers will stimulate more intensive research on various aspects and applications of CEC. The main focus of this issue is on the topic of column technology, which represents almost one third of the papers. The second largest group contains the review articles, and the rest is scattered over the whole field. It is rather remarkable that in our "biological century", CEC of proteins is rather under represented. This is particularly surprising since, thanks to the unique features of electroosmotic flow, CEC is expected to become an efficient tool for the separation of slowly diffusing molecules such as proteins.

I would like to thank the authors for their contribution to this Special Thematic Issue, and wish them much success in their research on CEC in the future.

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