

Contact

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Top Skills

Spectroscopy
Chemistry
UV/Vis

Languages

Tamil

Honors-Awards

Ruth L. Kirchstein National Research Service Award (T32) Training Grant
Society of Analytical Chemists of Pittsburgh Starter Grant
Top 40 Under 40 Power List, The Analytical Scientist
Cottrell Scholars Award
National Science Foundation, CAREER Award

Publications

Pressure-driven bipolar electrochemistry
High-Throughput Selective Capture of Single Circulating Tumor Cells by Dielectrophoresis at a Wireless Electrode Array
Analytical tools for characterizing heterogeneity in organelle content.
Electric field gradient focusing in microchannels with embedded bipolar electrode
Electronic effects and the redox potentials of catechol-boronate complexes.

Patents

Device for electrokinetic focusing and electrical detection of particles and chemical species facilitate by a porous electrode

Robbyn Anand

Suresh Faculty Fellow, Carlyle G. Caldwell Endowed Chair,
Department of Chemistry, Iowa State University
Ames, Iowa, United States

Summary

My research group develops microfluidic strategies that employ electrokinetic phenomena and tissue-on-chip architectures to address pressing needs in public health - including the prevention of cancer spread and the management of kidney disease. As a graduate advisor, I aim to cultivate graduate students' ability to think independently, communicate effectively, and research ethically.

Experience

Coltie

Chief Executive Officer
October 2022 - Present (1 year 4 months)
Ames, Iowa, United States

Iowa State University

8 years 6 months

Associate Professor Of Chemistry

April 2022 - Present (1 year 10 months)
Ames, Iowa, United States

Assistant Professor of Chemistry

August 2015 - April 2022 (6 years 9 months)
Ames, Iowa

University of Washington

Research Associate (Post-doctorate)

January 2011 - June 2015 (4 years 6 months)

As a Postdoctoral Research Associate in Dr. Daniel Chiu's laboratory at the University of Washington, I contributed to the development of a method for detection of rare cells expressing low levels (<10,000) target surface antigens on the eDAR platform (a cell sorting technology). We worked in collaboration with Dr. Hubert Vesselle from U.W. Medicine to apply our technology to the detection of circulating tumor cells (CTCs) in the peripheral blood of patients

Concentration enrichment, separation and cation exchange in water-in-oil droplets

Integrated selective capture, sequestration, fluidic isolation, electrical lysis and analysis of single cells

Apparatus and method for manipulation of discrete polarizable objects and phases.

High-throughput selective capture of biological cells by dielectrophoresis at a bipolar electrode array.

with non-small cell lung cancer (NSCLC) with the aim of gaining prognostic insight and developing treatment strategies to prevent development of further metastases.

University of Texas at Austin

Graduate Research Assistant

June 2005 - August 2010 (5 years 3 months)

I received my Ph.D. in Chemistry in Dr. Richard Crook's laboratory at the University of Texas at Austin. We developed electrokinetic techniques for enrichment and separation of charged species in microfluidic devices. Specifically, we used faradaic reactions at a bipolar electrode in a microfluidic channel to generate an ion depletion zone, which in the presence of an electric field, led to a locally enhanced electric field strength and an extended field gradient. Charged species introduced into the microfluidic channel under pressure driven flow were carried along the channel up until they reached a point on the field gradient at which their electrophoretic velocity was equal in magnitude and opposite in sign to the convective flow.

After completing my Ph.D., we have since collaborated to develop a membraneless seawater desalination technology.

Education

The University of Texas at Austin

Ph.D., Chemistry · (2005 - 2010)

Anderson University

B.A., Chemistry · (2000 - 2004)