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Chitkara University, SCL design neural amplifier silicon chip

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Useful for diagnosis of various chronic diseases like Parkinson, Spinal cord injuries, Epilepsy and Paralysis etc.



The VLSI Centre of Excellence, Chitkara University, Rajpura, Punjab, in collaboration with Semi-conductor Laboratory (SCL), Mohali, Punjab, have designed and fabricated a low-voltage low-noise neural amplifier silicon chip in 0.18 µm technology useful for diagnosis of various chronic diseases like Parkinson, Spinal cord injuries, Epilepsy and Paralysis etc.

This neural amplifier chip was released in an event held in Chitkara University campus in the presence of Dr Madhu Chitkara, Pro-Chancellor, Chitkara University, Dr Archana Mantri, Vice-Chancellor, Chitkara University and HS Jatana, Group Head - Design and Process group, SCL.

Speaking on the occasion, Dr Chitkara reiterated University's commitment to promote the cause of research and innovation so as to pass on the maximum benefit to its students who eventually are nation builders of tomorrow.

The designed neural amplifier silicon chip can also be used in developing neural prosthetics systems for physically disabled persons. Dr Kulbhushan Sharma under the supervision of Dr Rajnish Sharma, Senior Professor, Chitkara University and SCL team led by HS Jatana was associated with this work. The layout and post-layouts simulations of neural amplifier silicon chip were performed by Dr Kulbhushan Sharma during a few months training at SCL under the observation of Rahul Kumar Tripathi, Senior Scientist, SCL.

This work is an example of hand in hand efforts put forth by both academia and industry which is useful not only for clinics and patients but also to the research scholars and circuit design community working in bio-potential signal recording all over the world. Further, the novel low-voltage and low-noise techniques reported in the design of neural amplifier are expected to be used by the scientific community for implementing various other circuits such as voltage amplifiers and transimpedance amplifiers etc for biomedical applications.