



## Boys Town Introduces Groundbreaking OPM System at their Institute for Human Neuroscience

**Boys Town, NE,** Boys Town's Institute for Human Neuroscience is revolutionizing child brain research with the recently installed brain imaging technology known as OPM, which stands for optically-pumped magnetometry. OPM research will include the emergence of psychiatric conditions during the earliest stages of life, brain function as infants become aware of their environment in real-time, how environmental toxins affect the brain at the earliest stages of life, and so much more.

Dr. Tony Wilson is internationally recognized for his work utilizing neuroimaging to investigate brain development and using those findings to predict long-term outcomes in children. "Up until now, the leading methods of brain imaging have used large devices that are fixed in place, such as MRI and MEG systems," Dr. Wilson states, "these devices are extremely precise in adults, but their relative precision is far less in children because the equipment was made to fit adults, and the techniques require that the participants remain perfectly still, which as everyone knows is hard for children". In contrast, OPM sensors are very small and can be attached directly to the person, which maximizes precision while also allowing movement. The new system at Boys Town has 128 sensors, which means that it is the most precise OPM system in North America and one of only two such systems in the world.

The Institute for Human Neuroscience can configure these sensors using custom helmets and other designs that can be individually fit to any surface, including the head of infants, and can be used to map brain function as the person moves.

Using the OPM, Boys Town neuroscientists can now map developmental milestones in the brains of infants. Specifically, being able to see how senses like touch, sight, and sound develop from the earliest stages of life. Scientists can also watch how the brain changes as children learn to control their movements or to recognize the face of their mother.

“Boys Town National Research Hospital is the only place in the United States to have this cutting edge technology,” says Dr. Wilson, “and we are very excited about the impact that this technology will have on improving the lives of children and families in Nebraska and around the world”.

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## **ABOUT BOYS TOWN NATIONAL RESEARCH HOSPITAL**

Boys Town National Research Hospital is an international leader in research related to pediatric neuroimaging, childhood deafness, vision, cognitive neuroscience, and communication disorders. For 40 years, Boys Town Hospital has been dedicated to providing leading edge clinical care, pioneering translational research and improving the lives of children and their families through applied technology and educational outreach programs.

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