Intraocular magnetic microparticles may offer a potentially safe and effective method of sealing retinal tears and overcoming some of the current drawbacks of traditional retinal detachment surgery.

“This novel device draws on advances in nanotechnology and could be potentially used in retinal detachment to seal retinal tears by means of pressure and also adjusted to surpass tractional forces in proliferative vitreoretinopathy (PVR) cases,” according to Diego Ruiz-Casas MD.

In recognition of their ground-breaking research, Dr Ruiz-Casas, Ramon Y Cajal University Hospital, Madrid, Spain, and his team of co-workers were awarded first prize in the EURETINA Innovation Awards, a prize established by EURETINA in 2011 to support and encourage innovation in the field of retinal medicine.

In a presentation summarising his team’s research, Dr Ruiz-Casas said that using magnetic microparticles may help to overcome some of the drawbacks associated with current retinal detachment (RD) techniques such as scleral buckling, pneumatic retinopexy and vitrectomy.

“Some of the main drawbacks of current treatments include the eye wall deformation by scleral buckle, the delayed effect with retinopexy and the need for an intraocular tamponade by means of interfacial tension,” he said.

He noted that there was a clear need for more effective treatments for RD.

“Rhegmatogenous retinal detachment occurs in approximately seven to 18 out of 100,000 people a year...” means that anywhere between four and 12 million people worldwide will have it,” said Dr Ruiz-Casas.

Summing up, Dr Ruiz-Casas said that the OMD could be potentially used in retinal detachment to seal retinal tears by means of pressure and also adjusted to surpass tractional forces in PVR cases. Other intriguing possible applications include vitreoretinal dissection/drainage, localised drug release and treatment of intraocular tumours, he said.