



## Scheda di Offerta Tesi

**Titolo (provvisorio):** In vitro study of the generation of silicone oil emulsions in vitrectomised eyes

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### Descrizione

#### Motivazione e campo di applicazione

Vitrectomy is a surgical procedure during which the vitreous humour is removed from the eye. The only long term vitreous substitute presently in use is silicone oil. In spite of its many desirable properties, silicone oils often tend to create an emulsion in the vitreous chamber and this is associated with various post surgical complications. The mechanisms underlying the generation and progression of the emulsion are still poorly understood.

#### Obiettivi generali e principali attività

We propose to study this phenomenon using a real scale model of the eye. Specific aim of the project is to understand the role of endogenous molecules released into the eye secondary to inflammation on the generation of emulsions.

The eye model will be mounted on the shaft of a computer controlled motor and will be rotated so as to reproduce saccadic eye rotations. The generation and progression of the emulsion will be monitored during the experiment with a digital camera. At the end of the experiment the emulsion will be characterised in terms of droplet size distribution.

#### Obiettivi di apprendimento (strumenti tecnici e analitici, metodologie sperimentali)

The student will learn various experimental techniques.

**Luogo/i in cui si svolgerà il lavoro:** Istituto CNR/ICMATE

### Informazioni aggiuntive

**Abilità e capacità richieste:** Basic knowledge of fluid mechanics and experimental techniques.

**Numero massimo di studenti:** 1