round, fashionably shaped lens. With funding from the NEI, we are now building a prototype of the round deformable lens. The initial prototype lens offers a power variation of up to 2.00 diopters and high power uniformity over a 40 mm diameter optical zone. The benefits of the new design will be explained and the results of performance testing of the lens will be presented. Supported in part by NIH grant R43 EY09789. All the authors have proprietary interest in this lens.

Poster # 62

A NEW DEFORMABLE ADJUSTABLE LENS FOR PRESBYOPIA Eli Peli, M.Sc., O.D., *The Schepens Eye Research Institute, Harvard Medical School;* Joshua Rabinovich, B.S., Daniel Barnea, Ph.D., *Visya Incorporated, Boston Massachusetts.*

A need for a dynamically changing spectacle lens as a correction for presbyopia has led to the development of numerous types of deformable, fluid filled lenses. Past developments did not result in commercial products due to various difficulties. We have designed a novel fluid filled deformable lens. This design is based on a fixed fluid volume caged between two optical plates. The refractive power is controlled by varying the plates spacing at the edge of the lens. This spacing controls the pressure of the refractive fluid and simultaneously forces the boundary conditions controlling resultant surface curvature. This design avoids transferring fluid in and out of the lens as in previous designs. We show by calculations that less energy is required for changes of power. This approach also enables better optical quality in a thinner lens, and the constructing a non-

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