Since 1999, physicists are involved in one more collaboration based on the accelerator ELSA in Bonn. The collaboration includes more than 10 institutions, mostly from Germany. The accelerator ELSA has intense beams of tagged photons with the energy up to 3000 MeV and a multi-photon spectrometer – the Crystal Barrel. This device covering a solid angle close to 4π allows to study simultaneously several processes of the photoproduction of different neutral mesons: $\gamma p \to \pi^0 p$, $\gamma p \to \pi^0\pi^0 p$, $\gamma p \to \eta p$, $\gamma p \to \pi^0\eta p$ and so on by detecting from two to eight photons resulted from the decay of neutral mesons produced in reactions under study. One of main scientific goals is a search for so called "missing" resonances which are predicted by theoretical models but were not observed till now in πN scattering. Experiments were carried out with both a liquid hydrogen target and a liquid deuterium one allowing to study the photoproduction not only off the proton but also off the neutron. The coherent η photoproduction off the deuteron is also a subject of investigation. Circularly-polarized photons can be produced by scattering of incident electrons off a diamond crystal, this widens significantly a field of investigations.

The main part of experimental setup is the Crystal Barrel detector. This device, now named CB–ELSA, with its excellent photons detection capability is the ideal instrument to study the above mentioned reaction over the full dynamical range. The CB–ELSA is equipped with 1380 CsI(Ta) crystals; the large angle coverage of the detector allows for the reconstruction of multi-photon final states. To provide the possibility to detect and identify also charged particles (protons, deuterons), a scintillating fibre detector surrounding the target is inserted in the central part of the CB–ELSA. Besides, starting from November 2002 the TAPS spectrometer is placed just downstream of the Crystal Barrel with the aim to detect particles (neutrals and charged) emitted from the target in the forward detector. The TAPS spectrometer consists of 528 BaF_2 crystals, its angle coverage is $\pm 30°$ relatively to the incident beam direction. Thus, the combination CB–ELSA + TAPS create a unique detector of neutral and charged particles having almost 4π acceptance and excellent energy and angular resolution for the final-state particles.

During the years 2000–2003, numerous runs of data-taking were performed at the energies of incident electrons of 1400, 2600 and 3200 MeV; the energy of tagged bremsstrahlung photons defined by characteristics of a tagging system amd covers typically the range from 25% to 95% of the incident electron energy. The main components of the tagging system are a photon-production target (radiator), a dipole magnet, which deflects the bremsstrahlungs electrons according to their specific momenta and a detector for tracing the paths of the electrons. The detector part of the tagging system consists of a ladder of 14 scintillation counters and two multi-wire proportional chambers. In addition, last two years the existing tagging system is equipped with a set of 500 scintillating fibres allowing to tag photon flux up to 10^7/s with a high efficiency.

In the period from June 2002 till July 2003 the Crystal Barrel collaboration has got several thousands of hours of beam-time and has obtained a lot of new valuable experimental data. Processing and analysis of these data are underway now.