The **PC-LIST** program was developed to prepare a list of components used in schematics or in PCB design under P-CAD. The working cycle of PC-LIST consists of two stages. At the first stage the PC-LIST extracts information from the P-CAD files, produces the report files and passes them to EXCEL. At the second stage it is possible to use EXCEL features for editing, printing, zooming and others. It is most useful for schematics or PCB designs with components that were chosen and saved using PC-BANK. At this case the data from additional PC-BANK layers will be inserted into report.

System requirements:

- Operating System: MS Windows 3.1/3.11 or MS Windows 95;
- Disk storage: at least 4 megabytes of available disk space;
- Monitor: VGA or SVGA graphic adapter and compatible monitor;
- Software: PCLIB, PDIFOUT, PDIFIN utilities for P-CAD 7 or later;
  Oracle 7 - for PC-BANK
  EXCEL 5.0 - for PC-LIST

The first network versions of PC-BANK and PC-NORM were installed at CERN on December 1994 for beta-test evaluation. The operational versions were installed at CERN PC Networks on November 1995. At PNPI the current version of PC-BANK is installed at IT department local network. After the developing of PNPI local network PC-BANK will be accessible to other departments. The main results of these works were presented at EDAC-ETC EUROASIC 94 – the 1994 European Design and Test Conference 23.2.-3.3. 1994, Paris.

There are a few main directions for future development:

- current versions of these tools deal with P-CAD software, that use PDIF (P-CAD Database Interchange Format) for component description, therefore PC-BANK and PC-NORM should be upgraded for supporting modern EDIF (Electronic Design Interchange Format) format;
- to develop mechanism, that allows use other DBMSs for creation PC-BANK database;
- the possibility of using of current PC-BANK implementation is limited by the size of Local Area Network and accessibility of the Oracle server. The new version of PC-BANK can be integrated into Internet, as WWW application.

PREPARATION OF PURE HD-GAS FOR $dd\mu$-CATALYSIS INVESTIGATION

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In 1994 at PSI (Switzerland) was started a new investigstion of $dd\mu$-catalysis in D_2 and HD-mixtures with greatly increased precision [1]. One of the main goal of this experiment is the study of the temperature dependence resonant and non-resonant $dd\mu$-formation rates for HD-molecules, so far no detailed known. Because of the formation rate on HD-molecules ten times less than ones on D_2-molecules, one should reduce as much as possible the amount of D_2 in the gas mixture. Specially for this purpose at PNPI was designed and constructed new system for HD-gas preparation.

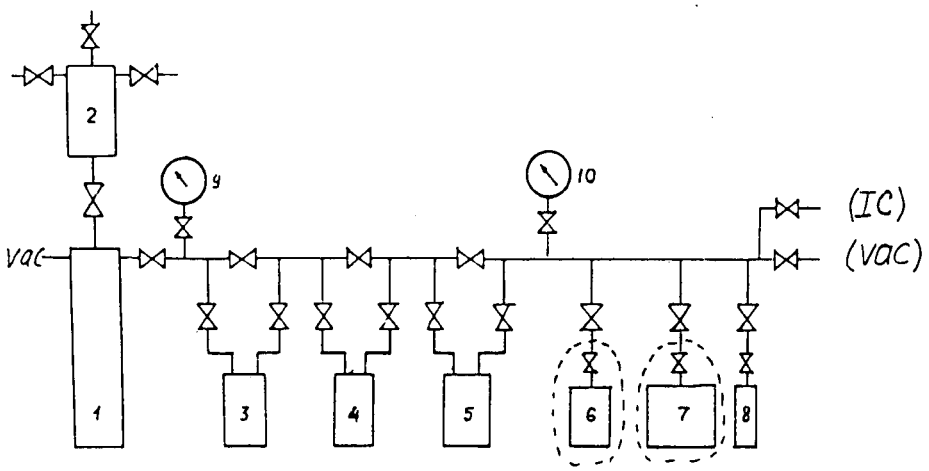

Fig.1. Setup for HD-gas preparation. *1* – vessel for reaction; *2* – vessel for water; *3÷5* – LN_2-traps; *6÷7* – vessels for pure gases; *8* – sample for mass-spectrometer analysis; *9÷10* – manometers

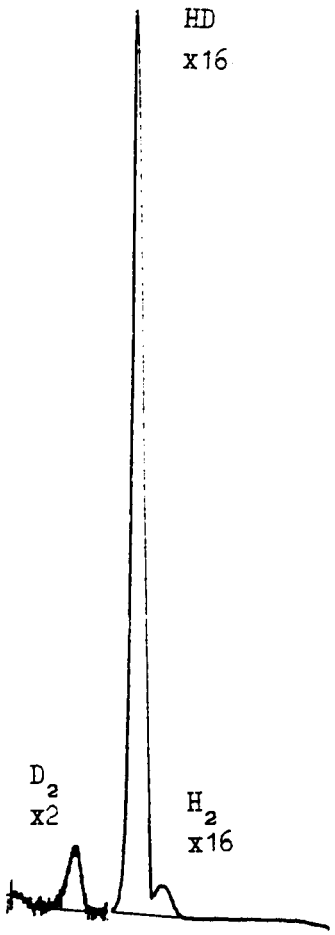

Fig.2. The HD-gas semple analysis by chromatography method. HD – 94.1%, D_2 – 1.3%, H_2 – 4.6%

Early [2] the HD-gas was generated in the reaction of metal hydrides $LiAlH_4$ with heavy water:

$$LiAlH_4 + 4D_2O \rightarrow LiAl(OD)_4 + 4HD$$

The $LiAlH_4$ was suspended in an hydrous tetrahydrofuran and at about 0°C, D_2O was slowly added and HD evolved. One of the problem of this method was sensitivity to any admixtures of Li which also involved in reaction $Li+2D_2O \rightarrow 2Li(OD) + D_2$ with generation of D_2-admixture. Another problem was a high level of impurities in HD-sample – near 200 ppm. In our method instead of using heavy water we used reaction of normal water with deuterated hydrides: $LiD + H_2O \rightarrow LiOH + HD$. In this case the any amount of metallic Li or LiH will give only H_2 as background that will not influence on the determination of the $\lambda_{dd\mu}$-formation rate on HD-molecules: $LiH + H_2O \rightarrow LiOH + H_2$. The technological layout of HD-gas production is presented on Fig.1. The HD-gas after purification in LN_2-traps are stored in vessels (6–8) and then go to a special compression system with cooling by liquid helium. We reached the following parameters of HD-mixture: HD(94,1%) + D_2(1,3%) + H_2(4,6%) (Fig.2). The chromatography analysis has indicated a very small level of impurities: $N_2 = 0,5$ ppm, $O_2 = 5 \cdot 10^{-2}$ ppm, $H_2O = 1,5$ ppm. The long time testing of the stability of HD-gas in the IC showed that during one month the level of D_2 background increased no more than on 0,6%. Thus, our new setup will permit to us investigate $dd\mu$-catalysis on almost pure HD-molecules [3].

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PERSPECTIVES OF THE RADIOPHOTOLUMINESCENT (RPL) METHOD APPLICATION TO CLINICAL MEDICINE

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In this report we present the technique to measure the depth dose fields, based on the RPL-method. The principle of the RPL process lies in the fact that, there are some materials (silver- activated metaphosphat glasses for instance), in which stable luminescent centers or dose centers (DC) are produced under irradiation. DCs are complicated configurations with Ag_2^+ and Ag_3^{2+} as the basis. The readout information is realized by UV light activation of DCs (the wavelength range is 300 – 350 nm) and by registration of the luminescent photon (life time of the exitated state is about 3–4 μs, maximum of the emitting spectrum at the 650 nm). The RPL-method allows the multiple dose readout without any dose information missing. The dose information can be rubbed off only after annealing RPL glasses at the