







expected above, the better separations between the polar ethanol and the two polar compounds are observed along the PC1 axis with the largest variance, while the distinction for the two polar analytes is shown in the PC2.

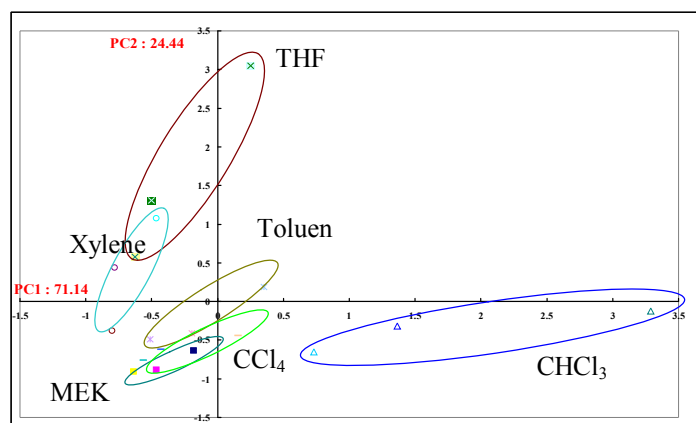


Fig.7 PCA score plot of of Toluene, xylene, CCl<sub>4</sub>, CHCl<sub>3</sub>, MEK, and THF

#### IV. CONCLUSION AND FUTURE WORK

A chemical gas sensor thin film made of functional polymers and multi-walled carbon nanotubes could be used to establish gas fingerprints for each gas species. In our study, it could be concluded that there are differences between the reactions of the array sensors to those different gases. Based on the distinction between these recognizable patterns, it is possible to identify the gases. As for gas species of similar pattern, successful recognition of each gas through specific algorithm could be achieved. This can be very helpful for future development of integrated gas sensing chip with “system-on-chip (SoC)” design.

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