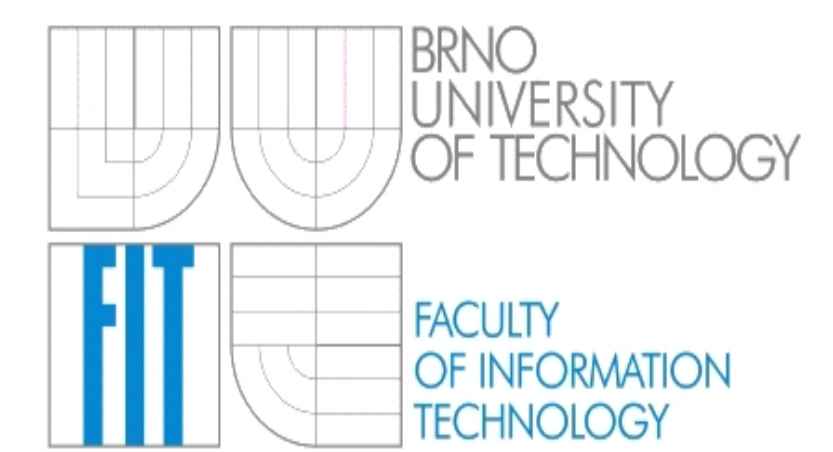
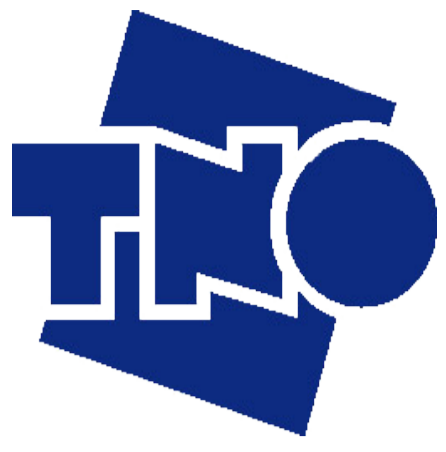


# CHANNEL COMPENSATION FOR SPEAKER RECOGNITION

Valiantsina Hubeika, Pavel Matejka, Lukas Burget and Jan Cernocky

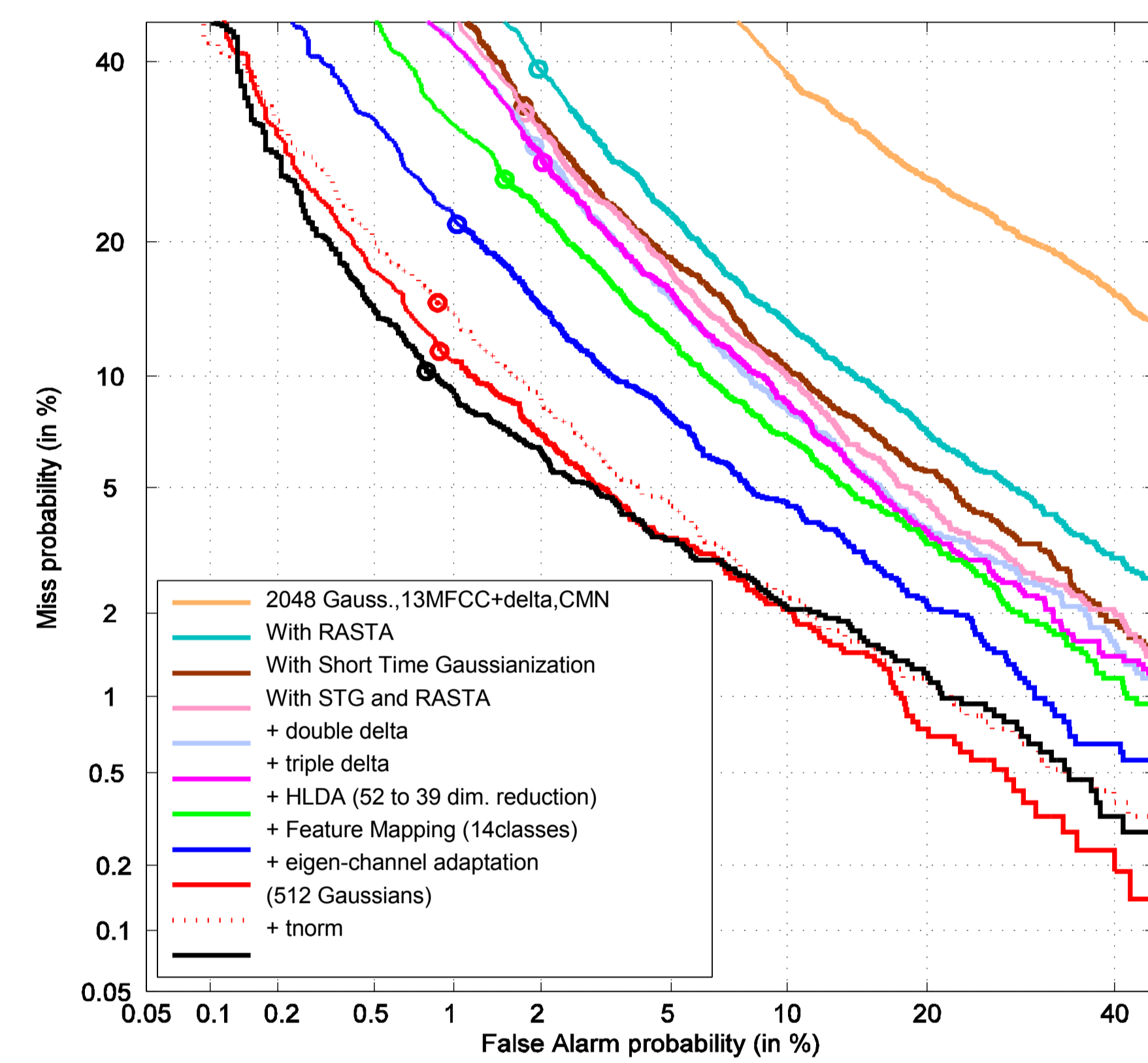
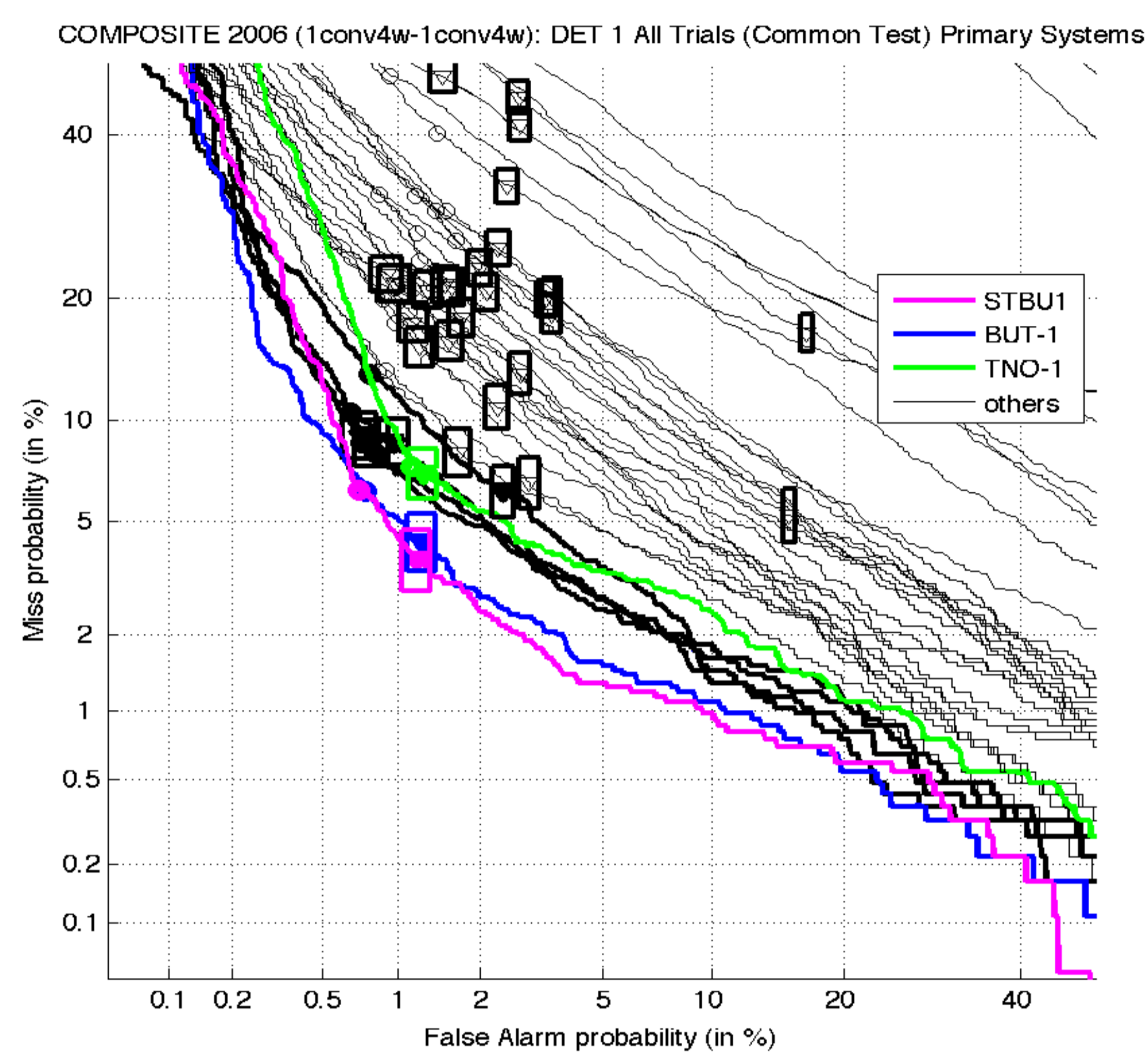


## NIST SRE 2006

The U.S. National Institute of Standards and Technology (NIST) organizes yearly SRE evaluations to contribute to the direction of research efforts and to calibrate the technical capabilities of different academic and industrial sites active in text-independent speaker recognition.

## GMM

- MAP adapted UBM with 2048 Gaussians
- 12MFCC+C0 (20ms window, 10ms shift)



This poster is an advertisement of the following papers, which provide results and thorough analysis of STBU systems:

- [1] N. Brummer, L. Burget, J. Cernocky, O. Glembek, F. Grezl, M. Karafiat, D. A. van Leeuwen, P. Matejka, P. Schwarz, and A. Strasheim, Fusion of heterogeneous speaker recognition systems in the STBU submission for the NIST speaker recognition evaluation 2006, *IEEE Trans. on Audio, Speech and Language Processing*, 2007, accepted.
- [2] L. Burget, P. Matejka, O. Glembek, and J. Cernocky, Analysis of feature extraction and channel compensation in GMM speaker recognition system, *IEEE Trans. on Audio, Speech and Language Processing*, 2007, accepted.

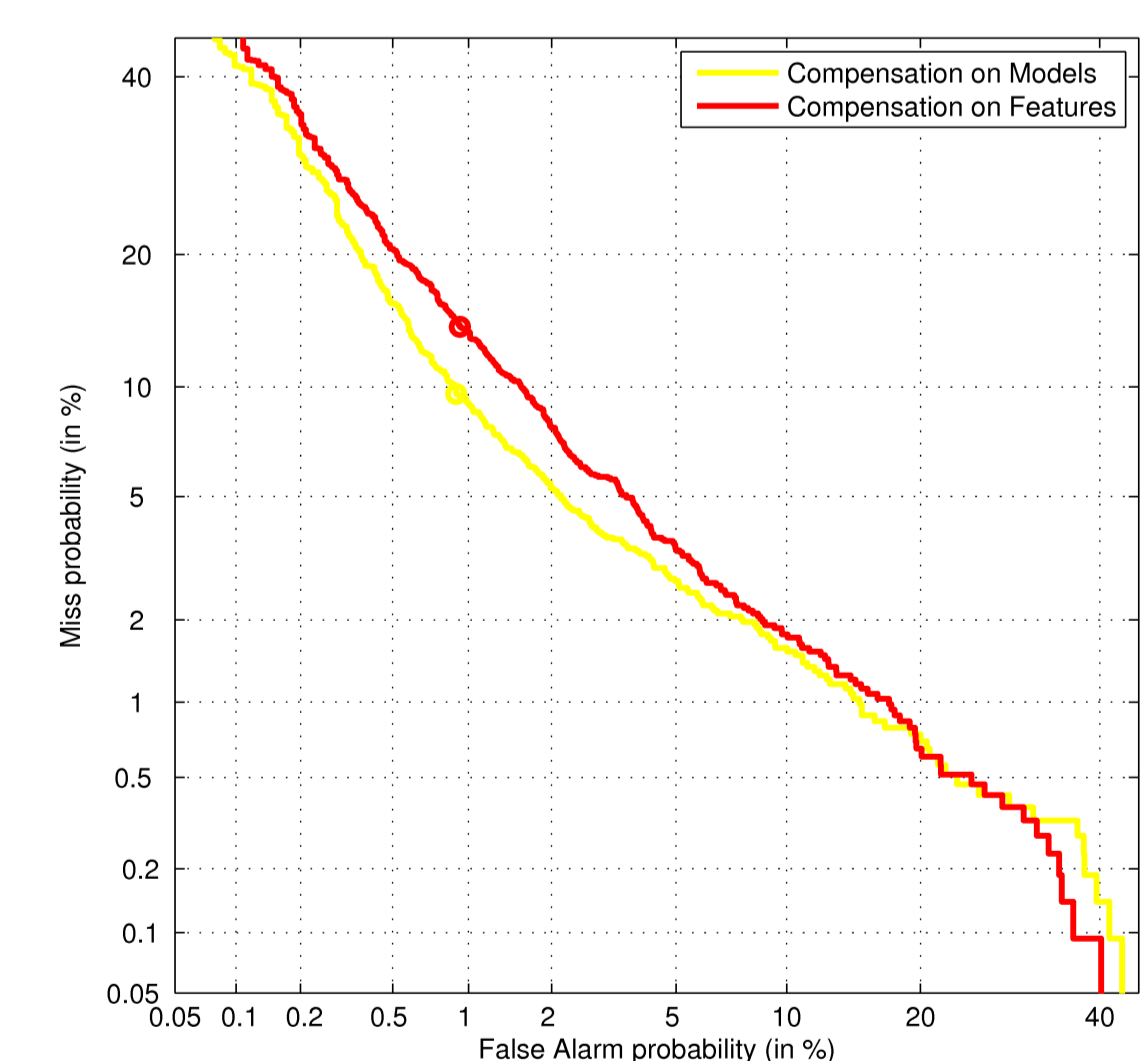
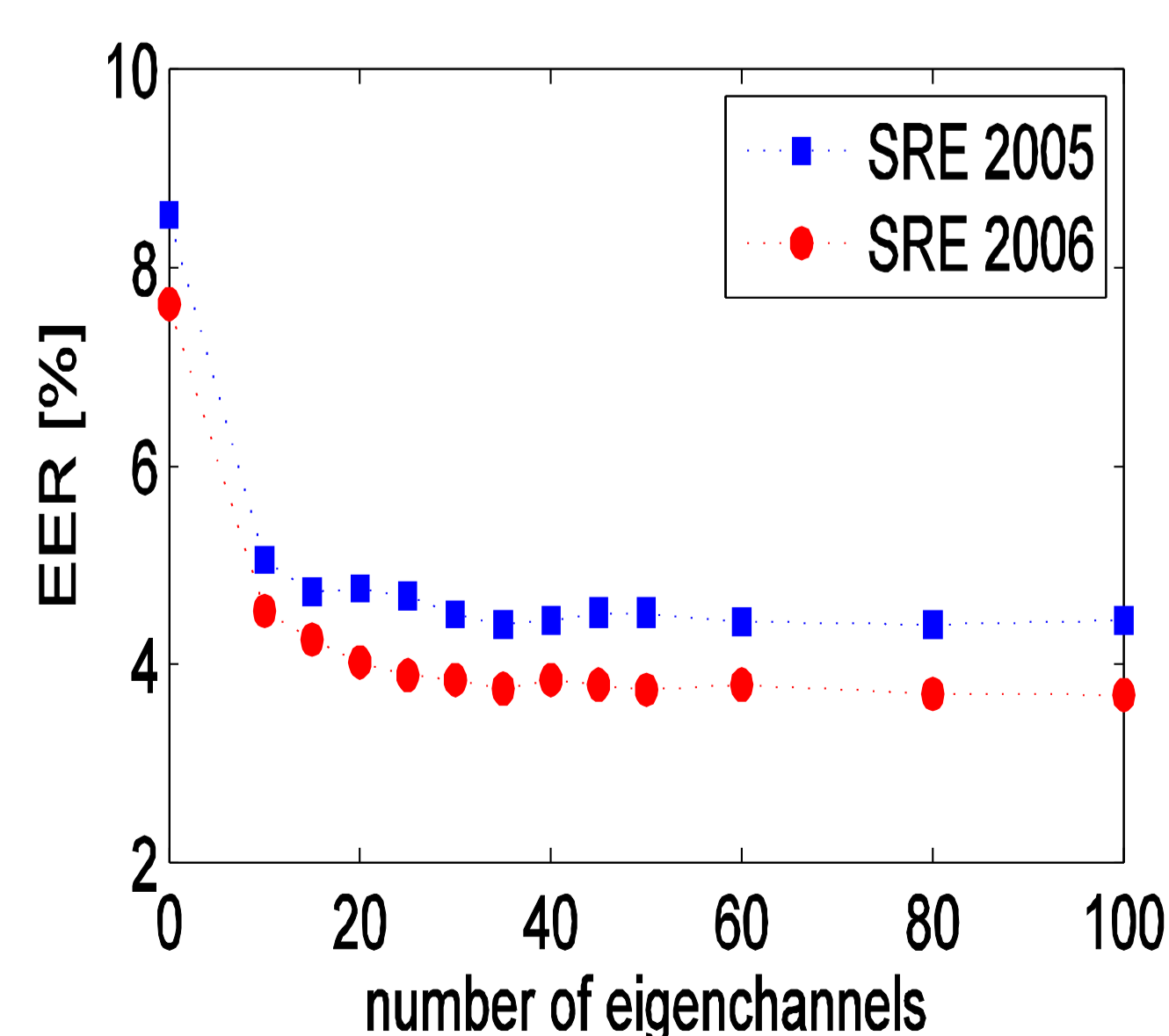
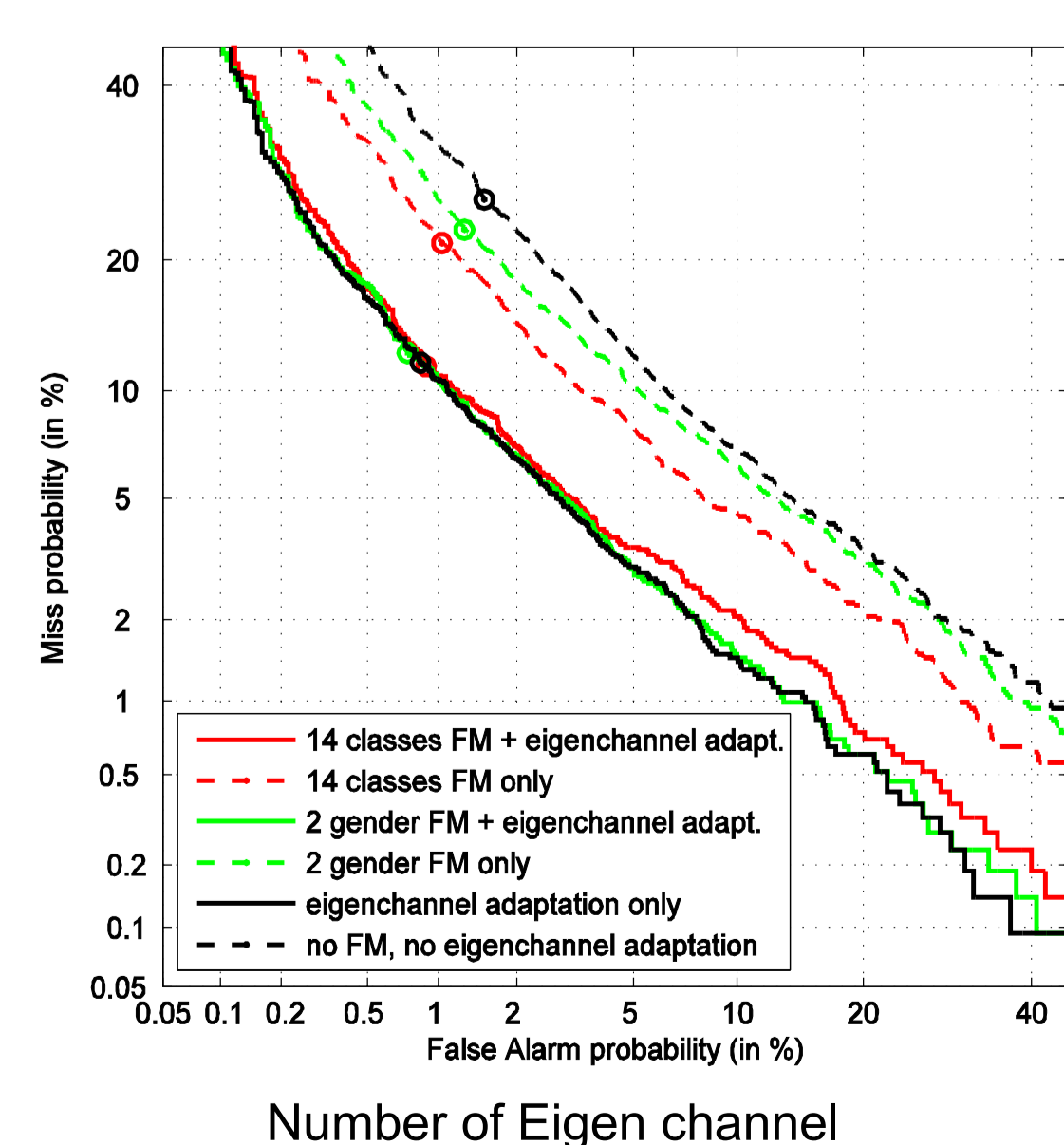
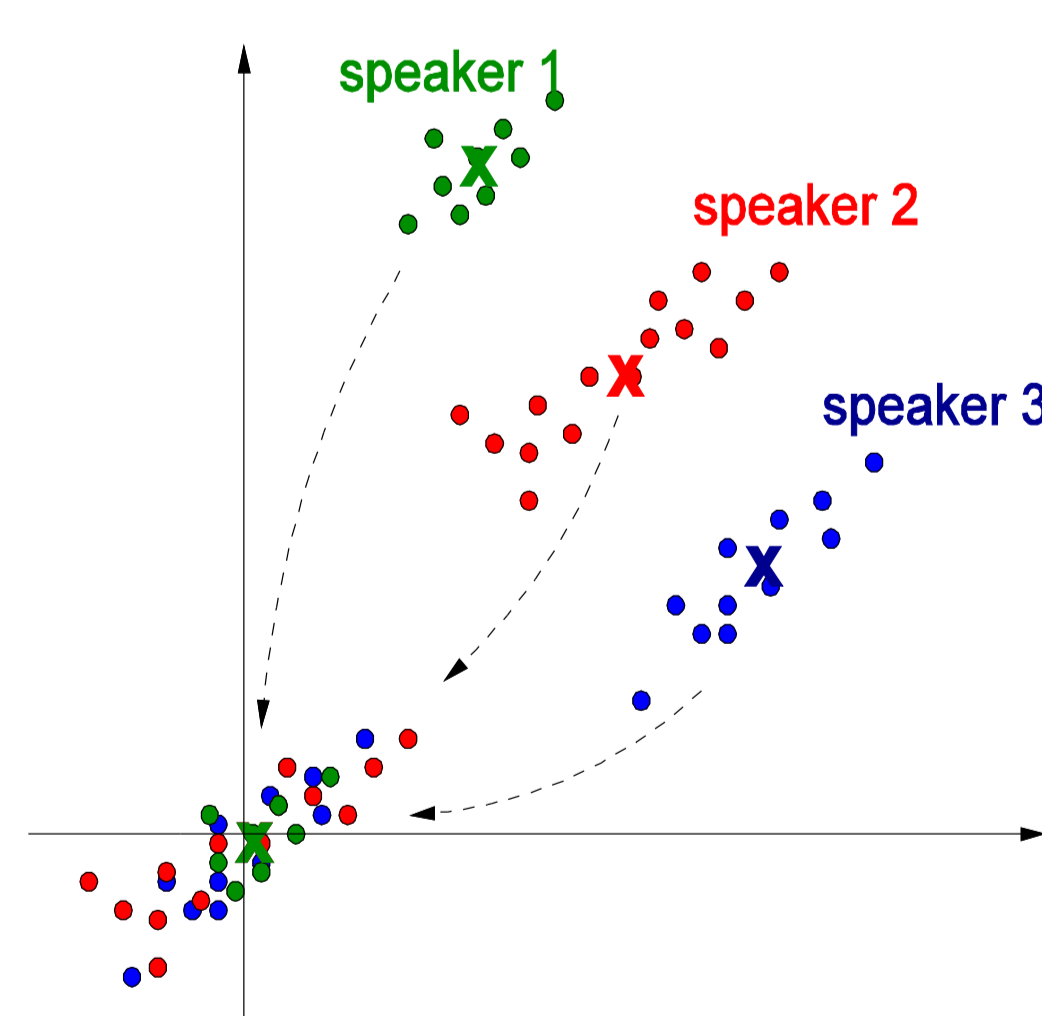
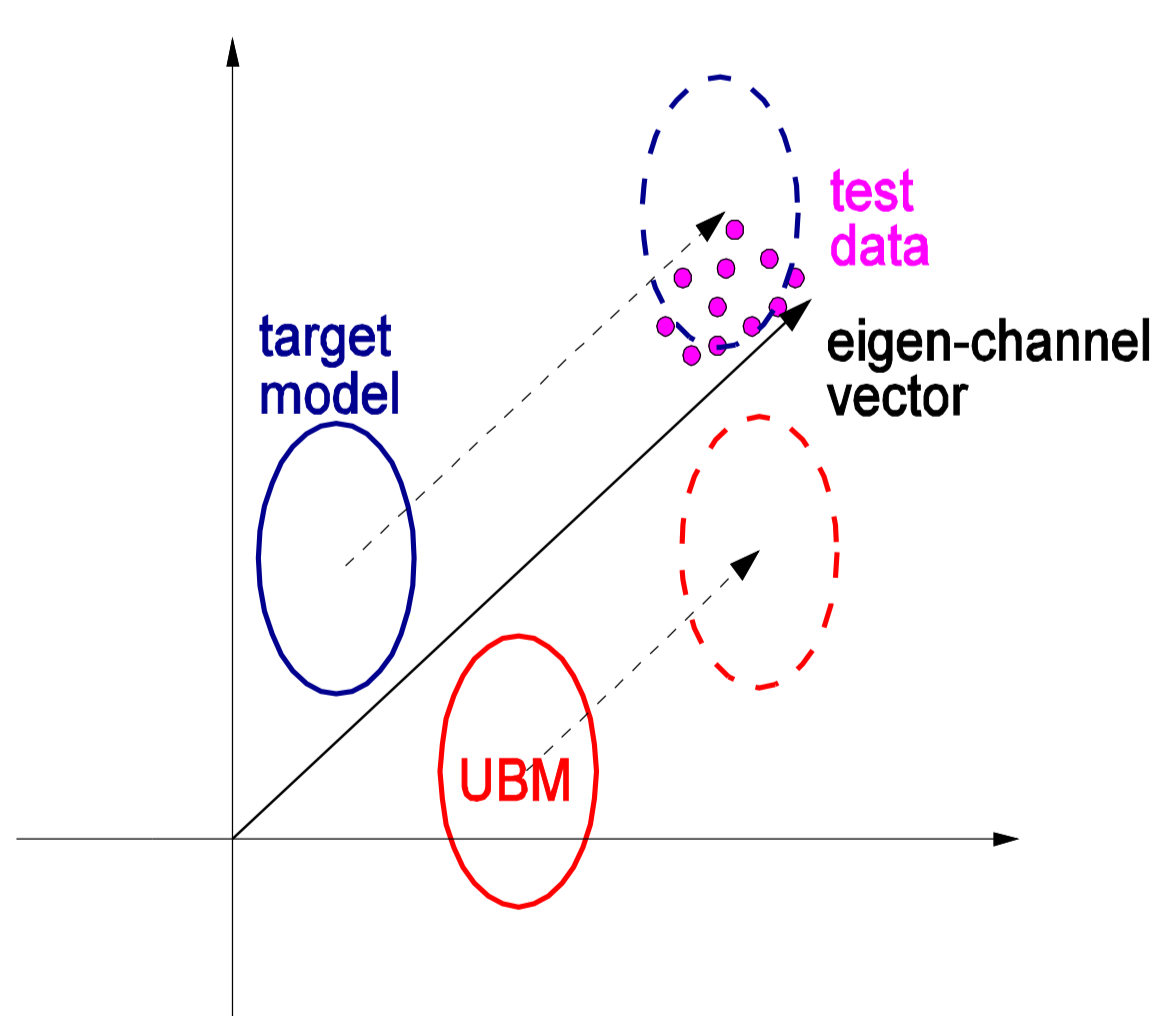
## BUT and STBU systems are fusion of the following subsystems:

- (STBU=Spescom DataVoice + TNO + BUT + University Stellenbosch)
- GMM, with short-time MFCC or PLP features. (SDV, TNO, BUT)
- GMM-SVM, using GMM mean supervectors as input. (SDV, TNO, BUT, SUN)
- MLLR-SVM, using MLLR coefficients derived from a LVCSR (BUT, SUN).
- All systems used linear supervector-space channel compensation techniques.

## Channel Compensation

- Eigenchannel Compensation on Models  
Shifting models' parameters
- Compensation on Features  
Approximation of eigenchannel compensation  
Shifting features' parameters

## Eigen channel compensation



	SRE 2006 Data	
	$C_{det}^{min}$	EER
GMM – compensation on models	.020	3.55%
GMM – compensation on features	.023	3.72%
Fusion with SVM's – BUT NIST SRE2006	.014	3.04%

