荧光光度法中**Kalman**滤波法指示未知组分的研究

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摘要　以苯丙氨酸、酪氨酸和色氨酸三组分体系的荧光光度分析为例,
研究了Kalman滤波法指示未知组分的潜力。根据新息序列的白噪音特性, 建立指示函数,
并确定指示函数的临界值, 指示未知组分存在;
并根据相对新息序列的形状可大致估计未知组分的荧光光谱的形状和峰位。

关键词　　色氨酸　酪氨酸　荧光分光光度法　卡尔曼滤波　苯并氨酸

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A study on the indication of unexpected components by kalman filtering in fluorospectrophotometry

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Abstract　The potential of Kalman filtering for indication of unexpected components in a mixture was experimental evaluated by taking the spectrofluorimetric anal. of the tricomponent system of phenylalanine, tryptophan and tyrosine as an example. According to the whiteness of the innovation sequence, a criterion, which was defined as the math. expectation of the sequence of the innovation normalized to the measured signals (normalized innovations), was developed to flag for unexpected emissions. Insights into the relationship between the innovation sequence and the measurement noises revealed that the normalized innovations are numerically equivalent to the relative standard deviations (RSD) of the measured signals and the value of the criterion therefore should be of the order of the square of the RSD. The threshold of the criterion was thus determine experimental An omission of any contributed component in the model destroyed the whiteness of the innovation sequence and hence made the criterion higher than the threshold. Thus, an unexpected component was indicated. Furthermore, the peak position and the shape of the emission from the unexpected component were also approx. estimated by checking the structure of the normalized innovation sequence.

Key words　TRYPTOPHAN　TYROSINE　FLUOROSPECTROPHOTOMETRY　KALMAN FILTERING

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