

전력 플랜트 열성능 효율의 예측 모델에 관한 연구

최기상[†] · 김성근*(호서대)**A Study on the Estimation Model for Thermal Performance Index of Power Plant**

Ki-Sang Choi and Seong-Kun Kim

Key Words: Uncertainty Estimation Model,(불확실도 평가 모듈) Correlation Analysis(상관관계), Fuzzy number(퍼지 넘버)

Abstract : As operation of power plant continues, more calibrations and validations are required for measurement sensors. There are many causes for invalid collection of performance measurements including malfunction of signal processing. We assumed that initial acceptance data and design data of power plants could provide correlation information between measurement data. These data can be used as sample sets of the estimation relation for the correct measurement data. The relation can be modeled using regression model based on sample data of plant design data without loss of precision. Propagation of uncertainty in the calculation is modeled using fuzzy number.

정성 숫자에 의한 플랜트 측정데이터 불확실도 결정에 관한 연구

최기상[†] · 김성근*(호서대)**A Study on the Determination of the Measurement Uncertainty in Power Plant using Qualitative Number**

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Key Words: Measurement Error,(측정 오류) Qualitative number(정성 숫자), Turbine Cycle(터빈 사이클)

Abstract : Uncertainty modeling for engineering measurement is required to compensate the effect of inherent bias in the measured data. Procedures for propagating the uncertainty are to be included in the uncertainty model to evaluate effectively the final uncertainty of performance index variable. We developed the propagation procedure using a qualitative number. The procedure was developed using new algebra of qualitative mathematics. The procedure is applied to the determination of the measurement uncertainty of the main feed water flow in the turbine cycle of thermal power plant. The result was compared to the general approach of conventional uncertainty propagation method now used in industry.