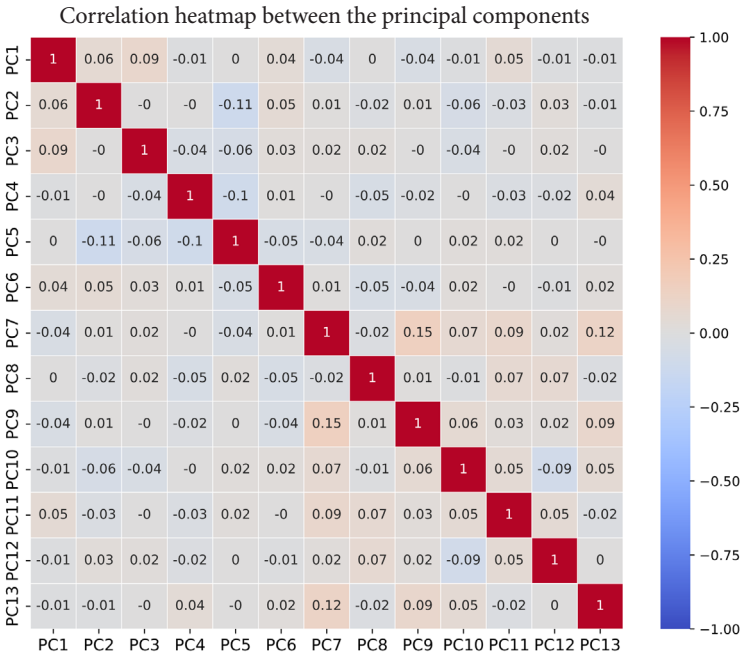

Supplementary Fig. 4. Correlation heatmap between the principal components (PC1 to PC13). The heatmap illustrates the correlation coefficients between the principal components, with values close to zero indicating minimal correlation. The diagonal elements represent a perfect correlation of each principal component with itself (correlation = 1), while the off-diagonal elements show very low correlation between the principal components, demonstrating their independence.