

Energy-Mass Partitioning Landscape of Mineral-Associated Self-Assembly

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Of the 20 proteinogenic amino acids occurring in nature, the alanines and substituted-alanines are the most common. To this end, their reaction dynamics are likely to hold important insights into the coupling of carbon and nitrogen cycling. For example, in soils where alanine and its substituted-alanine counterpart, glutamic acid, each account for more than 10% of total free amino acids content;¹ their interaction with minerals could provide insights in key preservation and transformation mechanisms. The presentation will detail measured variations in the energy-mass partitioning dynamics of alpha- and beta-alanine and their substituted-alanine counterparts onto different mineral surfaces, and how this data allows for the deciphering of mineral-associated self-aggregation and assessment of potential for mineral preservation versus mineralization.

1. Vranova, V.; Rejsek, K.; Skene, K. R.; Formanek, P., Non-protein amino acids: plant, soil and ecosystem interactions. *Plant and Soil*, **2011**, *342*, (1), 31-48.