

## Web bases for rings of $SL_3$ invariants

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Let  $V$  be a three-dimensional vector space, and consider the collections of  $a$  vectors in  $V$  and  $b$  linear forms on  $V$ . The coordinate ring of such collections is a polynomial ring in  $3(a+b)$  variables. Within that ring, consider those functions which are  $SL(V)$  invariant. A basis for this ring of invariants was constructed by Kuperberg (the "web basis"). It interacts well with the cluster algebra structure on this ring constructed by Fomin and Pylyavskyy, but there are still open questions, for which better computational tools will be helpful. I will be bringing code largely written by Véronique Bazier-Matte and Guillaume Douville for calculating web invariants, which I hope we will be able to polish and incorporate into Sage during the week. I will mention some results obtained with them together with Al Garver, Rebecca Patrias, and Emine Yıldırım.