Current research interests connected to cluster algebras

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My current research interest is cluster algebras arising from a marked surface without punctures. In a recent joint work with Thomas Brüstle ([BZ11]), we give a module-theoretic interpretation of Schiffler's expansion formula ([S10]) which is defined combinatorially in terms of complete $(\Gamma, \gamma)-$paths in order to get the expansion of the cluster variables in the cluster algebra of a marked surface. Based on the geometric description of the indecomposable objects of the cluster category of the marked surface in [BZ10], we show the coincidence of Schiffler-Thomas' expansion formula ([ST09]) and the cluster character defined by Palu([P08]).

References

[BZ10] T. Brüstle and J. Zhang, *On the cluster category of a marked surface*, to appear in J. Algebra and Number Theory, arXiv:1005.2422v2.

[BZ11] T. Brüstle and J. Zhang, *A module-theoretic interpretation of Schiffler's expansion formula* arXiv:1105.5673

[P08] Y. Palu, *Cluster characters for 2-Calabi-Yau triangulated categories*, Annales de l'institut Fourier **58** (2008), no. 6, 2221-2248.

[S10] R. Schiffler, *On cluster algebras arising from unpunctured surfaces II*, Adv. Math. **223** (2010), no. 6, 1885-1923.

[ST09] R. Schiffler and H. Thomas, *On cluster algebras arising from unpunctured surfaces*, Int. Math. Res. Not. **17** (2009), 3160-3189.