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Peter Y Pang* (matpyh@nus.edu.sg), Department of Mathematics, National University of Singapore, 10 Lower Kent Ridge Road, Singapore, 119076, Singapore. *Global existence of a two-dimensional chemotaxis–haptotaxis model with remodeling of non-diffusible attractant.*

In this talk, we deal with the cancer invasion model

$$u_t = \Delta u - \chi \nabla \cdot (u \nabla v) - \xi \nabla \cdot (u \nabla w) + \mu u(1 - u - w)$$

$$v_t = \Delta v - v + u$$

$$w_t = -vw + \eta w(1 - w - u)$$

in a bounded smooth domain in the plane with zero-flux boundary conditions, where χ , ξ , μ and η are positive parameters. Compared to previous mathematical studies, the novelty here lies in: first, our treatment of the full parabolic-parabolic-ODE chemotaxis-haptotaxis system; and second, allowing for positive values of η , reflecting processes with self-remodeling of the extracellular matrix. Under appropriate regularity assumptions on the initial data (u_0, v_0, w_0) , by using adapted L_p -estimate techniques, we prove the global existence and uniqueness of classical solutions when μ is sufficiently large, i.e., in the high cell proliferation rate regime. (Received June 06, 2019)