

CC Mei

Fue en diciembre de 2010, estando en una oficina de Hollister Hall, que me encontré en con los profesores Chiang C. Mei y Philip Liu explorando ideas sobre lo que, a la postre, se traduciría en una teoría sobre transporte de sustancias en la zona rompiente. Yo venía de más de 10 años peleando con planillas Excel en una consultora chileno-sudafricana y recién iniciaba el doctorado. Phil me invitó a una reunión y, recién conociendo a CC, me senté entre ambos a escuchar y anotar sigilosamente, como en muchas ocasiones lo hice en reuniones de ingeniería. Pero en solo un par de minutos, presencié en primera persona cómo estos dos genios tiraban ideas brillantes sobre la mesa, con un lenguaje basado en ecuaciones y métodos de perturbación que excedían largamente la frontera de mi conocimiento. Aún tengo esas hojas con garabatos y derivadas parciales, que me tomó varios meses en comprender, y que luego de casi tres años se tradujeron en un paper. Durante años hice la analogía de estar sentado como mero espectador ante un partido de Pete Sampras y André Agassi, en que cada uno con derechos y reveses artísticos asombraban a la audiencia. En este caso, el partido se batía moviendo los límites de una ciencia compleja, pero que con sus toques aparecía simple y elegante. Esa reunión fue sucedida por otras y varios almuerzos en alguno de los restaurantes asiáticos que colindan con Cornell University, donde un plato compartido al centro del mesón nos llevaba, al menos por un rato, más allá de la teoría. En solo un par de encuentros pude conocer a un mago cuya capacidad de abstracción y virtudes intelectuales simplemente me volaron la cabeza.

Buen viaje CC.

Pato Winckler, Julio 2026

Profesores que colaboraron durante mi doctorado en Cornell University (2010-2015)



PHILIP LIU



JIM JENKINS



BILL PHILPOT



MATT PRITCHARD



CHIANG MEI

CC Mei

It was in December 2010 that I found myself with professors Chiang C. Mei and Philip Liu in Hollister Hall, exploring ideas that would eventually become a theory on the transport of substances in the surf zone. I had been wrestling for more than 10 years with Excel spreadsheets at a port engineering consulting firm and was just beginning my PhD studies. Phil invited me to this meeting and sat down between the two of them quietly taking notes. Within just a couple of minutes, I witnessed firsthand how these two geniuses tossed brilliant ideas across the table, in a language built on equations and perturbation methods laying far beyond my knowledge boundaries. I still have those pages full of scribbles and partial derivatives in the complex realm, which took me several months to understand, and which, nearly three years later, turned into a paper. For years I used the analogy of sitting as a mere spectator at a match between Pete Sampras and André Agassi, each dazzling the audience with artistic forehands and backhands. In this case, the match was being played out on the frontier of a science that, with their touch, seemed simple and elegant. That meeting was followed by others, and by a few dinners at one Asian restaurant near Cornell University, where a shared dish at the center of the table would carry us, at least for a while, beyond wave theory. In just a couple of encounters, I got to know a wizard whose capacity for abstraction and intellectual gifts simply blew my mind.

Safe travels, CC.

Pato Winckler, Julio 2026

Advective Diffusion of Contaminants in the Surf Zone

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Abstract: A theory on the horizontal spreading of contaminants in the surf zone is described in this paper. The surf zone is viewed as a narrow strip comparable to the characteristic wavelength, in which turbulence caused by wave breaking is strong. Flows inside the surf zone consist of both oscillatory motions and a steady current induced by breaking waves. The wave field in the shoaling zone is modeled by the linear theory for monochromatic waves, and it is assumed that the breaking wave height is proportional to the local depth in the surf zone. The simplest scenario of longshore current on a straight beach of constant slope is considered, for which the longshore current velocity is predicted by a slightly modified version of Longuet-Higgins' original theory developed in the 1970s. On the basis of the estimation that the time scale of horizontal diffusion is much longer than the wave period, the perturbation method of multiple scales is applied to derive the transport equation for the advective diffusion of a solute. The total advection velocity is found to be the sum of the steady current caused by radiation stresses and a contribution from the covariance of fluctuating velocity and concentration, which is the same as the Stokes drift in periodic waves. Numerical predictions for the movement of a solute cloud released, instantaneously or continuously, in a longshore current along a plane beach are examined. The solute is found to drift shoreward in addition to the expected transport along the shore. Computed examples are presented and comparisons with available laboratory experiments are also discussed. DOI: [10.1061/\(ASCE\)WW.1943-5460.0000196](https://doi.org/10.1061/(ASCE)WW.1943-5460.0000196). © 2013 American Society of Civil Engineers.