Re: Non−linear overlaying of waves in water

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From: Franz Heymann (*notfranz.heymann_at_btopenworld.com*)
Date: 01/24/05

Date: Mon, 24 Jan 2005 14:01:23 +0000 (UTC)

"Franz Heymann" <notfranz.heymann@btopenworld.com> wrote in message
news:ct28viohv5@sparta.btinternet.com...
>
> "heiko ackermann" <heiack@gmx.de> wrote in message
> news:410fff40.0501230900.4ba5271@posting.google.com...
> > Hey,
> > If I overlay two acoustic waves with different frequencies in
water,
> > and my amplitudes are high enough for linear effects.
> > There will be four waves, the two wave frequencies and the new two
> > ones, f1−f2 and f1+f2
>
> These sum and difference frequencies will not occur if you are
> considering a linear system, as you said above here.
> >
> > Now I want to know if what's about the amplitude of the two new
> ones.
> > Will the amplitude change, or will it be the always the same.
>
> Play around with an expression of the kind
>
*> y = y1*sin(w1*t) + y2*sin(w2*t) + alpha*sin(w1*t)*y2*sin(w2*t)*
> until you have only a sum of simple sinusiodal oscillations. Alpha
> would be indicative of the relative strength of the non−linearity.

It might have been more obvious if I had extracted the two amplitudes
explicitly out of alpha, to replace it by
alpha = beta * y1 * y2

Franz

> > In the linear case the beating ampltidue will change, but whats
> about
> > the non−linear chase.
>
> Franz
>

>