Talk:Damping

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Contents [hide]

I agree [edit]

I think it should be merged there is no reason to separate a constant from its concept. —Preceding unsigned comment added by 71.127.184.53 (talk) 17:57, 3 October 2007 (UTC) [reply]

is this right? [edit]

zeta=h/2/sqrt(h*k) ??
Angular velocity is w^2=k/m
and damping coefficient is h=2*zeta*w
or
zeta=h/2/w
or
zeta=h/2/sqrt(k/m)

They cant both be right
zeta=h/2/sqrt(k/m) vs. zeta=h/2/sqrt(h*k)

Regarding the claim that bells ring with an almost pure sinusoidal tone [edit]

I think the argument for this is very unclear. In my experience, and as far as I know, bells are not constructed to make pure tones. On the contrary, they make a very dissonant noise.

I suppose the article's claim can be translated to that a high quality bell can be viewed as an underdamped, linear time-invariant system, and that it thus, after an initial impulse, will follow the curve of a decaying exponential (zero) plus an exponentially decaying sinusoid. I do not believe the premise is correct, and thus the conclusion is not obvious to me.

"High quality bells" are not mentioned in the article about the pure tone. —Preceding unsigned comment added by 77.40.128.194 (talk) 15:11, 6 December 2009 (UTC) [reply]

> Okay. Bell has been changed to tuning fork too appease the musicians who get confused about the analogy when considering the higher-order harmonics. —**TedPavlic** (talk/contrib/@) 16:08, 6 December 2009 (UTC) [reply]

Derivation of the damping ratio [edit]

For $\zeta = 0$ you get $\omega = i\omega_0$ rather than $\omega = \omega_0$. As ω_0 is the frequency of the undamped oscillation, ω should signify the frequency of the damped oscillation. Bo Jacoby (talk) 10:34, 17 May 2010 (UTC). [reply]

> I'm not able to find a sensible interpretation of this comment. Please try to clarify your point; perhaps reference to a source would help. Dicklyon (talk) 19:36, 17 May 2010 (UTC) [reply]

Damping constant [edit]

This page defines the damping ratio in terms of the damping constant - but it neither defines the damping constant nor links to a page that does, as far as I can see. Can someone who knows the definition edit it in? Nathaniel Virgo (talk) 15:22, 15 February 2011 (UTC) [reply]

> It was put in in this diff; c shows up in the next section, the damping coefficient in the second-order differential equation; it should be mentioned sooner, huh? Dicklyon (talk) 05:54, 16 February 2011 (UTC) [reply]

is the graphic correct? [edit]

The ordinate axis of the graph showing the displacement vs. cycles appears to be labeled *incorrectly*-- the first cycle is labeled (correctly) as completed at 2pi, but the next cycle ends at 6pi. Thormatteson (talk) 02:54, 6 September 2011 (UTC) [reply]

> True, that's messed up! You can message the author of the image; or fix it in Inkscape. Dicklyon (talk) 03:16, 6 September 2011 (UTC) [reply]
>
> > I corrected it (with Notepad++). Nillerdk (talk) 14:02, 19 October 2011 (UTC) [reply]

Logarithmic decrement edits [edit]

A sequence of strange edits here:

- Anomalistic not realizing that underdamped includes undamped.
- Andy Dingley misunderstanding his edit summary and removing the paragraph for a reason that does not appear to make any sense.
- AndrewDressel putting it back, trying to explain why the removal was wrong.
- Glider Maven removing it for lack of a source and for a different reason that doesn't seem to make any sense.

All the while, the equation was wrong and the variables it used were not defined, so trying to pin down when it applied was bound to fail. So I fixed the equation (copying from the linked article, which is sourced), and defined what the x variables are, which clearly only makes sense in underdamped (including underdamped) systems, since the x variables have no definition otherwise. I tried to make it succinct and hopefully more clear. If another source is needed, here's one. Dicklyon (talk) 05:01, 24 November 2018 (UTC) [reply]

Decay rate or attenuation rate – alpha or gamma or sigma? [edit]

@First Harmonic: In these edits to Q factor, the term "attenuation" was introduced with symbol alpha, but not really very well defined; later it was copied to this article (after someone changed attenuation to attenuation rate and I changed it to decay rate). The Siebert citation makes it look plausible, but I'm not finding it in there (looking at what I can see online so far, in Amazon and GBS). I've generally seen this called gamma, or sometimes sigma perhaps. It would be good to have a reference supporting whatever we call it. Dicklyon (talk) 22:09, 1 December 2018 (UTC) [reply]

Sketchy appositive [edit]

> The key difference between critical damping and overdamping is that**, in critical damping,** the system returns to equilibrium in the minimum amount of time.

Appositives are supposed to be subordinate, such that you can take them out and the sentence still makes sense (though in a narrow sense it might now be wrong).

Let's try that out:

> The key difference between critical damping and overdamping is that the system returns to equilibrium in the minimum amount of time.

That's not even wrong (heh)—that's not even allowable English semantics.

Sometimes you can almost skirt this quibble:

> The key difference between red light and blue light is wavelength.

Only good mental hygiene in dealing with such a species of Cliff's Notes ethereal utterance would instead demand:

> Red light and blue light are distinguished by wavelength.

PS: You could just take the two commas out, and the grammar would improve, though it wouldn't read optimally, suggesting that the underlying problem is the entire sentence structure.

Critically damped **is** technically a form of underdamping (no overshoot), suggesting the rough formulation: the critically damped system is an underdamped system distinguished by minimum time.

— MaxEnt 21:09, 24 May 2019 (UTC) [reply]

> The key problem is that this is not really about a key difference. I edited it. Dicklyon (talk) 00:46, 25 May 2019 (UTC) [reply]

Merge what? [edit]

I removed a stale undiscussed proposal to merge Damping ratio into Damped sine wave, which is a sad little article with even lower participation that this one. I did a little work on it today. Apparently, not many besides me work on this one either. I'm open to input on whether a merge is in order, one way or the other. Dicklyon (talk) 02:31, 19 February 2021 (UTC) [reply]

Damping vs Damping ratio [edit]

It appears to me that this article is not just about the *damping ratio* specifically, but about the general concept of *damping*. (Just look, for example, at how the damping ratio is only introduced in the lead's second paragraph, and how the section *Oscillation cases* doesn't mention the damping ratio at all). But that could be a good thing, as Damping is a disambiguation page and Wikipedia currently doesn't have an article about damping in general, which it should. And it wouldn't make sense in the first place to have an article about the damping *ratio* but not about *damping*. So I propose to move this article to Damping and move the disambiguation page to Damping (disambiguation). This is also supported by looking at the 200+ articles that currently link to Damping; the majority of them refer to damping in a general sense, which this article describes.

Any thoughts on this? Lennart97 (talk) 11:52, 2 March 2021 (UTC) [reply]

> OK by me. But please also look at the incoming links at Damping and see if some need to go elsewhere. I can help; we can split them up alphabetically perhaps. Dicklyon (talk) 18:51, 3 March 2021 (UTC) [reply]
>
> > Thanks for your reply. There's only a few links left, and they're being fixed as we speak (thanks, Mark83!). I'll wait another while in case anyone else has input (or objections) and then I'll submit a technical move request. Lennart97 (talk) 19:49, 3 March 2021 (UTC) [reply]
> >
> > > Having gone through most of the disambig links I'd concur that it is about the general concept of damping. I assumed it was the case, but in hindsight of having reviewed the >200 articles I'm not sure if discussion/thought was thorough enough on the changes that were made. Mark83 (talk) 20:04, 3 March 2021 (UTC) [reply]
>
> Agreed that this article should be moved to Damping. Most of the other articles that are listed there are based on the general concept given in this article, except Damping off and Damping (music). But we can just shift Damping to Damping (disambiguation). < Atom (Anomalies) 18:14, 4 March 2021 (UTC) [reply]

✔ **Done** Lennart97 (talk) 23:05, 5 March 2021 (UTC) [reply]

Peer Review [edit]

I am impressed by the detailed description of damping in the definition, in fact I have nothing I would change in the first paragraph. In the second paragraph, it reads; "A mass suspended from a spring, for example, might, if pulled and released, bounce up and down." I believe there is an overuse of commas in this section which makes it difficult for the reader to easily interpret. Instead I would recommend something like; "For example, a mass suspended from a spring, if pulled and released, will bounce up and down.". In the following sentences, one reads; "Sometimes losses damp the system and cause the oscillations...", here there is a small grammatical error where damp should be replaced with dampen. Before the Oscillation Cases section(which should be capitalized), the last sentence of the paragraph is a little long, due to the use of commas. "The physical quantity that is oscillating varies greatly, and could be the swaying of a tall building in the wind, or the speed of an electric motor, but a normalized, or non-dimensionalised approach can be convenient in describing common aspects of behavior." would be better written as "The physical quantity that is oscillating varies greatly, and could be the swaying of a tall building in the wind, or the speed of an electric motor. A normalized, or non-dimensionalised approach can be convenient in describing common aspects of behavior.". The rest of the article goes into great detail with no grammatical errors found. I like the in depth description of dampening sine and cosine waves, as the content is very technical and precise.

I'm not a Wikipedia editor, but ... [edit]

Something should be said about negative damping.

> *... during certain disturbances involving generation loss* in the Northern region of India's power grid. – Excerpted from: *Low Frequency Oscillations in Indian Grid; VII. Conclusion.*[1] Figure #2 on PDF page 3, and Figures #6 and #7 on PDF page 4. -- Vinyasi (talk) 19:32, 22 December 2022 (UTC) [reply]

1. ^ Low Frequency Oscillations in Indian Grid

The exponential growth of the cosine function is an example of negative damping producing instability in which its "output grows without bounds." $\mathbf{y(t) = e^t \cos(2\pi t)}$