Re: Low−coherence and high−coherence

Source: http://sci.tech−archive.net/Archive/sci.optics/2006−01/msg00041.html

- *From*: "Alexander Dräbenstedt" <alexspamander@xxxxxxxxxxxxxx>
- *Date*: Sun, 8 Jan 2006 01:25:15 +0100

"Salmon Egg" <salmonegg@xxxxxxxxxxxxx> schrieb im Newsbeitrag
news:BFE46794.13EC1%salmonegg@xxxxxxxxxxxxxxx
> On 1/6/06 3:47 AM, in article dpllcpldn1@xxxxxxxxxxxxxxxxxxxxxxx,
> "Alexander Dräbenstedt" <alexspamander@xxxxxxxxxxxxxx> wrote:
>
>> With low coherence interferometry you use a short coherence length (~?m)
>> to
>> map a topography that can be relativily high and can have steps. The
>> measurement device steps through the full height of the object and
>> observes
>> the passing of the contrast maximum of the interference fringes in each
>> point. The distance at which this maximum appears corresponds to the
>> height
>> of that point.
>>
>> In high coherence length interferometry the coherence length is as long
>> as
>> the full height of the objects topography. The measurement device steps
>> only
>> through a distance change of half lambda to record a full cycle of
>> interference fringes in every point. With that in each point the phase of
>> the fringes can be computed that corresponds to: (height of topography)
>> modulo (lambda/2). Using phase unwrapping the absolute topography can be
>> restored if the object has smooth slopes connecting all points.
>>
>> Alexander
>>
>>
>> "wytnij_to" <"(wytnij_to)pawel_gasior"@o2.pl> schrieb im Newsbeitrag
>> news:dpge4u$5gg$1@xxxxxxxxxxxxxxxxxxxxxxxx
>>> Hi!
>>> I've got one question: what is a difference between low−coherency and
>>> high−coherency intereferometry? Is it the point about coherence length??
>>>
>>> Best regards
>>> Gasik
>>
>>

> If I interpret your post correctly, the low coherence interferometry you
> are
> talking about uses a source such as a multi−longitudinal mode laser
> source.
> The autocorrelation function for such a source is periodic over long time
> with a period of the round trip resonator transit time. Between such
> times,
> the autocorrelation is close to zero and the light appears to be
> incoherent.
>
> Is that what you are talking about?
>
> Bill
>
> −− Ferme le Bush

I summed up what is widely known as white light interferometry. It commonly uses a very broad spectrum light source like an ordinary incandescent bulb or an LED.

Alexander

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- ***Follow−Ups***:
  - ♦ ***Re: Low−coherence and high−coherence***
    - ◊ *From:* Salmon Egg

- ***References***:
  - ♦ ***Low−coherence and high−coherence***
    - ◊ *From:* wytnij_to
  - ♦ ***Re: Low−coherence and high−coherence***
    - ◊ *From:* Alexander Dräbenstedt
  - ♦ ***Re: Low−coherence and high−coherence***
    - ◊ *From:* Salmon Egg

- Prev by Date: ***Re: How to calculate achievable flashlight beam divergence***
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