Claims

1. Audio encoder comprising

a background noise estimator ~~(12)~~ configured to determine a parametric background noise estimate based on a spectral decomposition representation of an input audio signal so that the parametric background noise estimate spectrally describes a spectral envelope of a background noise of the input audio signal;

an encoder ~~(14)~~ for encoding the input audio signal into a data stream during the active phase; and

a detector ~~(16)~~ configured to detect an entrance of an inactive phase following the active phase based on the input signal,

wherein the audio encoder is configured to encode into the data stream the parametric background noise estimate in the inactive phase,~~.~~

wherein

the background noise estimator is configured to identify local minima in the spectral decomposition representation of the input audio signal and to estimate the spectral envelope of the background noise of the input audio signal using interpolation between the identified local minima as supporting points, or

the encoder is configured to, in encoding the input audio signal, predictively code the input audio signal into linear prediction coefficients and an excitation signal, and transform code a spectral decomposition of the excitation signal, and code the linear prediction coefficients into the data stream, wherein the background noise estimator is configured to use the spectral decomposition of the excitation signal as the spectral decomposition representation of the input audio signal in determining the parametric background noise estimate.

2. Audio encoder according to claim 1, wherein the background noise estimator is configured to perform the determining the parametric background noise estimate in the active phase with distinguishing between a noise component and a useful signal component within the spectral decomposition representation of the input audio

signal and to determine the parametric background noise estimate merely from the noise component.

~~3. Audio encoder according to claim 1 or 2, wherein the encoder is configured to, in encoding the input audio signal, predictively code the input audio signal into linear prediction coefficients and an excitation signal, and transform code a spectral decomposition of the excitation signal, and code the linear prediction coefficients into the data stream, wherein the background noise estimator is configured to use the spectral decomposition of the excitation signal as the spectral decomposition representation of the input audio signal in determining the parametric background noise estimate.~~

43. Audio encoder according to ~~any of~~ claims 1 ~~to~~r 32, wherein the background noise 3estimator is configured to identify local minima in the spectral representation of the excitation signal and to estimate the spectral envelope of a background noise of the

input audio signal using interpolation between the identified local minima as supporting points.

~~54~~54. Audio encoder according to any of the previous claims, wherein the encoder is configured to, in encoding the input audio signal, use predictive and/or transform coding to encode a lower frequency portion of the spectral decomposition representation of the input audio signal, and to use parametric coding to encode a spectral envelope of a higher frequency portion of the spectral decomposition representation of the input audio signal.

~~65~~65. Audio encoder according to any of the previous claims, wherein the encoder is configured to, in encoding the input audio signal, use predictive and/or transform coding to encode a lower frequency portion of the spectral decomposition representation of the input audio signal, and to choose between using parametric coding to encode a spectral envelope of a higher frequency portion of the spectral decomposition representation of the input audio signal or leaving the higher frequency portion of the input audio signal un-coded.

~~76~~76. Audio encoder according to claim ~~5~~4 or ~~6~~5, wherein the encoder is configured to interrupt the predictive and/or transform coding and the parametric coding in inactive phases or to interrupt the predictive and/or transform coding and perform the parametric coding of the spectral envelope of the higher frequency portion of the spectral decomposition representation of the input audio signal at a lower time/frequency resolution compared to the use of the parametric coding in the active phase.

~~87~~7. Audio encoder according to claim ~~5~~4, ~~6~~5, or ~~7~~6, wherein the encoder uses a filterbank in order to spectrally decompose the input audio signal into a set of subbands forming the lower frequency portion, and a set of subbands forming the higher frequency portion.

~~98~~8. Audio encoder comprising

a background noise estimator ~~(12)~~ configured to determine a parametric background noise estimate based on a spectral decomposition representation of an input audio signal so that the parametric background noise estimate spectrally describes a spectral envelope of a background noise of the input audio signal;

an encoder ~~(14)~~ for encoding the input audio signal into a data stream during the active phase; and

a detector ~~(16)~~ configured to detect an entrance of an inactive phase following the active phase based on the input signal,

wherein the audio encoder is configured to encode into the data stream the parametric background noise estimate in the inactive phase,

wherein the encoder is configured to, in encoding the input audio signal, use predictive and/or transform coding to encode a lower frequency portion of the spectral decomposition representation of the input audio signal, and to use parametric coding to encode a spectral envelope of a higher frequency portion of the spectral decomposition representation of the input audio signal,

wherein the encoder uses a filterbank in order to spectrally decompose the input audio signal into a set of subbands forming the lower frequency portion, and a set of subbands forming the higher frequency portion, and

~~Audio encoder according to claim 8,~~ wherein the background noise estimator is configured to update the parametric background noise estimate in the active phase based on the lower and higher frequency portions of the spectral decomposition representation of the input audio signal.

~~10~~9. Audio encoder according to claim ~~9~~8, wherein the background noise estimator is configured to, in updating the parametric background noise estimate, identify local

minima in the lower and higher frequency portions of the spectral decomposition representation of the input audio signal and to perform statistical analysis of the lower and higher frequency portions of the spectral decomposition representation of the input audio signal at the local minima so as to derive the parametric background noise estimate.

~~11~~10. Audio encoder according to any of the previous claims, wherein the noise estimator is configured to continue continuously updating the background noise estimate during the inactive phase, wherein the audio encoder is configured to intermittently encode updates of the parametric background noise estimate as continuously updated during the inactive phase.

~~12~~11. Audio encoder according to claim ~~11~~10, wherein the audio encoder is configured to intermittently encode the updates of the parametric background noise estimate in a fixed or variable interval of time.

~~13. Audio decoder for decoding a data stream so as to reconstruct therefrom an audio signal, the data stream comprising at least an active phase (86) followed by an inactive phase (88), wherein the data stream has encoded therein a parametric background noise estimate which spectrally describes a spectral envelope of a background noise, the audio decoder comprising~~

~~a decoder (92) configured to reconstruct the audio signal from the data stream during the active phase;~~

~~a parametric random generator (94); and~~

~~a background noise generator (96) configured to synthesize the audio signal during the inactive phase (88) by controlling the parametric random generator (94) during the inactive phase (88) depending on the parametric background noise estimate.~~

~~14. Audio decoder according to claim 13, wherein the background noise generator (96) is configured to reconstruct a spectrum from the parametric background noise estimate and re-transform the spectrum into a time-domain.~~

~~15~~12. Audio decoder for decoding a data stream so as to reconstruct therefrom an audio signal, the data stream comprising at least an active phase followed by an inactive phase, the audio decoder comprising

a background noise estimator ~~(90)~~ configured to determine a parametric background noise estimate based on a spectral decomposition representation of the input audio signal obtained from the data stream so that the parametric background noise estimate spectrally describes a spectral envelope a background noise of the input audio signal;

a decoder ~~(92)~~ configured to reconstruct the audio signal from the data stream during the active phase;

a parametric random generator ~~(94)~~; and

a background noise generator ~~(96)~~ configured to reconstruct the audio signal during the inactive phase by controlling the parametric random generator during the inactive phase with the parametric background noise estimate,

wherein the background noise estimator is configured to identify local minima in the spectral decomposition representation of the input audio signal and to estimate the spectral envelope of the background noise of the input audio signal using interpolation between the identified local minima as supporting points.

~~16~~13. Audio decoder according to claim ~~15~~12, wherein the background noise estimator is configured to perform the determining the parametric background noise estimate in the active phase and with distinguishing between a noise component and a useful signal component within the spectral decomposition representation of the input audio signal and to determine the parametric background noise estimate merely from the noise component.

~~17~~14. Audio decoder according to claim ~~15~~ 12 or ~~16~~13, wherein the decoder is configured to, in reconstructing the audio signal from the data stream, apply shaping a spectral decomposition of an excitation signal transform coded into the data stream according to linear prediction coefficients also coded into the data, wherein the background noise estimator is configured to use the spectral decomposition of the excitation signal as the spectral decomposition representation of the input audio signal in determining the parametric background noise estimate, by.

~~18. Audio decoder according to claim 17, wherein the background noise estimator is configured to~~ identifying local minima in the spectral representation of the excitation signal and ~~to~~ estimating the spectral envelope of ~~a~~the background noise

of the input audio signal using interpolation between the identified local minima in the spectral representation of the excitation signal as supporting points.

~~19~~15. Audio encoding method comprising

determining a parametric background noise estimate based on a spectral decomposition representation of an input audio signal so that the parametric background noise estimate spectrally describes a spectral envelope of a background noise of the input audio signal;

encoding the input audio signal into a data stream during the active phase; and

detecting an entrance of an inactive phase following the active phase based on the input signal, and

encoding into the data stream the parametric background noise estimate in the inactive phase,

wherein

the determining a parametric background noise estimate comprises identifying local minima in the spectral decomposition representation of the input audio signal and estimating the spectral envelope of the background noise of the input audio signal using interpolation between the identified local minima as supporting points, or

the encoding the input audio signal comprises predictively coding the input audio signal into linear prediction coefficients and an excitation signal, and transform coding a spectral decomposition of the excitation signal, and coding the linear prediction coefficients into the data stream, wherein the determining a parametric background noise estimate comprises using the spectral decomposition of the excitation signal as the spectral decomposition representation of the input audio signal in determining the parametric background noise estimate.

16. Audio encoding method comprising

determining a parametric background noise estimate based on a spectral decomposition representation of an input audio signal so that the parametric background noise estimate spectrally describes a spectral envelope of a background noise of the input audio signal;

encoding the input audio signal into a data stream during the active phase; and

detecting an entrance of an inactive phase following the active phase based on the input signal, and

encoding into the data stream the parametric background noise estimate in the inactive phase,

wherein the encoding the input audio signal comprises using predictive and/or transform coding to encode a lower frequency portion of the spectral decomposition representation of the input audio signal, and using parametric coding to encode a spectral envelope of a higher frequency portion of the spectral decomposition representation of the input audio signal,

wherein a filterbank is used in order to spectrally decompose the input audio signal into a set of subbands forming the lower frequency portion, and a set of subbands forming the higher frequency portion, and

wherein the determining a parametric background noise estimate comprises updating the parametric background noise estimate in the active phase based on the lower and higher frequency portions of the spectral decomposition representation of the input audio signal.

~~20. Method for decoding a data stream so as to reconstruct therefrom an audio signal, the data stream comprising at least an active phase (86) followed by an inactive phase (88), wherein the data stream has encoded therein a parametric background noise estimate which spectrally describes a spectral envelope of a background noise, the audio decoder comprising~~

~~reconstructing the audio signal from the data stream during the active phase;~~

~~synthesizing the audio signal during the inactive phase (88) by controlling a parametric random generator (94) during the inactive phase (88) depending on the parametric background noise estimate.~~

~~21~~17. Method for decoding a data stream so as to reconstruct therefrom an audio signal, the data stream comprising at least an active phase followed by an inactive phase, the ~~audio decoder~~ method comprising

determining a parametric background noise estimate based on a spectral decomposition representation of the input audio signal obtained from the data stream so that the parametric background noise estimate spectrally describes a spectral envelope a background noise of the input audio signal;

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reconstructing the audio signal from the data stream during the active phase;

reconstructing the audio signal during the inactive phase by controlling a parametric random generator during the inactive phase with the parametric background noise estimate

wherein the determining a parametric background noise estimate comprises identifying local minima in the spectral decomposition representation of the input audio signal and estimating the spectral envelope of the background noise of the input audio signal using interpolation between the identified local minima as supporting points.

~~22~~18. Computer program having a program code for performing, when running on a computer, a method according to any of claims ~~19~~ 15 to ~~21~~17.